

# **Massachusetts Year 2010 Integrated List of Waters**

## ***Responses to Public Comments Pertaining to the Proposed Listing of the Condition of Massachusetts' Waters Pursuant to Sections 305(b), 314 and 303(d) of the Clean Water Act***



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**Executive Office of Energy and Environmental Affairs**  
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## Massachusetts Year 2010 Integrated List of Waters

*Responses to Public Comments Pertaining to the  
Proposed Listing of the Condition of Massachusetts' Waters Pursuant to Sections 305(b), 314 and 303(d)  
of the Clean Water Act*

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## Introduction

This report summarizes and presents responses to the comments received on the *Proposed Massachusetts Year 2010 Integrated List of Waters* that was prepared by the Massachusetts Department of Environmental Protection (MassDEP) in fulfillment of reporting requirements of sections 305(b) (Summary of Water Quality Report) and 303(d) (List of Impaired Waters) of the Clean Water Act (CWA).

The integrated list format provides the current status of all previously assessed waters in a single multi-part list. Each waterbody or segment thereof is placed in one of the following five categories:

- 1) Unimpaired and not threatened for all designated uses;
- 2) Unimpaired for some uses and not assessed for others;
- 3) Insufficient information to make assessments for any uses;
- 4) Impaired or threatened for one or more uses, but not requiring the calculation of a Total Maximum Daily Load (TMDL); or
- 5) Impaired or threatened for one or more uses and requiring a TMDL.

Thus, the waters listed in Category 5 are the 303(d) List and, as such, are reviewed and approved by the U. S. Environmental Protection Agency (EPA). The remaining four categories are submitted in fulfillment of the requirements under § 305(b).

The *Proposed Massachusetts Year 2010 Integrated List of Waters* was placed on the MassDEP web site at <http://www.mass.gov/dep/water/resources/tmdls.htm>. Notice of its availability for public review and comment appeared in the May 5, 2010 edition of the Massachusetts Environmental Monitor and was provided directly to over fifty different watershed associations and other interested parties. Paper copies of the document were also available from the Division of Watershed Management's Watershed Planning Program office in Worcester. The public comment period ended on June 11, 2010.

This document summarizes and provides responses to all comments received on the *Proposed Massachusetts Year 2010 Integrated List of Waters*. In most cases, the comments are reprinted here in their entirety; however, some of the longer comment letters were excerpted or paraphrased, and some comments were edited slightly to conform to the format adopted for this document. A final version of the *Massachusetts Year 2010 Integrated List of Waters*, incorporating the comments and responses presented here, will be prepared and submitted to the EPA for final approval of the 303(d) List (i.e., Category 5). The following table presents a list of those who submitted comments and the pages on which they appear in this document.

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## Responses to Comments on *Proposed Massachusetts Year 2010 Integrated List of Waters*

### 1) Berkshire Environmental Action Team (BEAT)

Comment: BEAT believes that the 2010 List should include the impairment of Laurel Lake, Laurel Brook, and the section of the Housatonic River from Laurel Brook through Stockbridge by zebra mussels, a horribly invasive and destructive invertebrate.

Response: Non-native species infestations are typically included as a stressor in the Integrated List but because the discovery of zebra mussels in these waters occurred after the most recent assessment of the Housatonic Watershed, this impairment was not acknowledged in the *proposed* List. Nonetheless, the presence of zebra mussels in these waters is well documented by the Massachusetts Department of Conservation and Recreation (DCR) and MassDEP will add this impairment to the *final* List, as requested here. It should be noted that the CWA distinguishes between “pollutants” such as nutrients, metals, pesticides, solids and pathogens that all require TMDLs and “pollution” such as low flow, habitat alterations and non-native species infestations that do not require TMDLs. Waters impaired by “pollution” are restored by methods that vary considerably depending upon the nature of the impairment and, in some cases, may be outside the scope of the CWA. Efforts to control the spread of zebra mussels in Massachusetts are described in *Rapid Response Plan for the Zebra Mussel (Dreissena polymorpha) in Massachusetts* (DCR, 2005) and *Massachusetts Interim Zebra Mussel Action Plan* (DCR and DFG, 2009). These two reports can be accessed, respectively, at the following websites: [http://www.mass.gov/dcr/watersupply/lakepond/downloads/zm\\_rrplan.pdf](http://www.mass.gov/dcr/watersupply/lakepond/downloads/zm_rrplan.pdf)  
[http://www.mass.gov/dfwele/press/zebra\\_mussel\\_interim\\_action\\_plan.pdf](http://www.mass.gov/dfwele/press/zebra_mussel_interim_action_plan.pdf)

Comment: BEAT believes that the 2010 List should include the impairment of the West Branch of the Housatonic River from the culvert at 1229 North Street, Pittsfield to the dam at Belair Pond on Wahconah Street by sedimentation/siltation.

Response: Due to the costs associated with calculating TMDLs and implementing pollution control strategies, the decision to place a waterbody on the 303(d) List must be based on sufficient, validated scientific data obtained under the appropriate conditions for comparison with water quality standards. MassDEP had no data indicating that the West Branch Housatonic River was impaired by sedimentation/siltation at the time of the most recent water quality assessment of the Housatonic Watershed (September, 2007), and this stressor cannot be added to the 303(d) List based solely on the statement that the water is impaired. Rather, credible monitoring data must be submitted in support of this comment. In general, the MassDEP will accept and review data and information pertaining to the quality of Massachusetts’ surface waters if the following are provided: 1) an appropriate Quality Assurance Project Plan including a laboratory Quality Assurance /Quality Control (QA/QC) plan, 2) use of a state certified lab (certified for the applicable analyses), 3) a description of data management, QA/QC and data validation procedures, and 4) the information is documented in a citable report that includes QA/QC analyses. Furthermore, the submittal of a complete data report with the information specified above does not guarantee that the data will automatically be used by the MassDEP for assessment and listing purposes. It simply allows MassDEP to screen the data to evaluate their applicability for making assessments. Data submittal guidelines and recommended content of data reports are available directly from MassDEP’s Division of Watershed Management (DWM) Office in Worcester.

Comment: We question whether the Housatonic River (2103450) MA21-04 from just downstream of Holmes Road to the outlet of Woods Pond might have water quality issues with fecal coliform from raw sewage released from the main sewer line that runs just west of the river (at least in 2009) and phosphorus from the treatment plant itself?

Response: The most recent water quality assessment completed by MassDEP for the Housatonic Watershed (2002) can be found at <http://www.mass.gov/dep/water/resources/wqassess.htm>. A review of the information pertaining to Segment MA21-04 will reveal that this portion of the river was indeed found to be impaired by fecal coliform, although sources were unconfirmed. As a result, this segment appears

on the 303(d) List as impaired by fecal coliform. MassDEP did not, however, find compelling evidence from the data and information available at the time that phosphorus was impairing the designated uses of this segment. Again, monitoring data suggesting otherwise should be submitted in accordance with the protocols discussed in the response to the previous comment.

Comment: In the future, BEAT would suggest that DEP begin to incorporate data on impediments to fish movement such as dams and stream crossings (culverts and bridges) into the Integrated Waters List. The River and Stream Continuity Partnership with UMass Amherst, The Nature Conservancy, and the Massachusetts Department of Ecological Restoration (formerly Riverways) has developed a survey protocol that is being used to assess stream crossings around the state. BEAT has partnered with the Housatonic Valley Association and Hoosic River Watershed Association to begin to assess all the crossings in Berkshire County. Certainly barriers to fish and wildlife movement would be important information to add to the Integrated Waters List making it more useful to an even broader audience.

Response: MassDEP concurs that the presence of barriers to fish and wildlife movement is a useful addition to the body of information that informs sound watershed management, and MassDEP often does apply the impairment code “Fish Barriers/Fish Passage” or other related habitat stressors when completing waterbody assessments if the information is readily available. This kind of information is included in the individual watershed assessments that appear on the MassDEP website (<http://www.mass.gov/dep/water/resources/wqassess.htm>) and the impairment appears as a non-pollutant (i.e., not requiring a TMDL) in the Integrated List of Waters. Waters impaired solely by non-pollutant stressors are placed in Category 4c of the List. MassDEP will consider for use in making assessments data and information obtained through the River and Stream Continuity Partnership if they are submitted according to the protocols described in earlier responses.

## **2) Town of Dennis Water Quality Advisory Committee**

*(The representative from the Town of Dennis Water Quality Advisory Committee wrote: “After a review of the Massachusetts Year 2010 Integrated List of Waters, I noticed that only two Town of Dennis ponds/lakes appear on the List: Scargo (96279) and Flax (96090). Both appear as Category 3 Waters. The Dennis Water Quality Advisory Committee (DEN-WQAC) collected freshwater pond water quality data for the period 2001 – 2008. Ed Eichner, Sr. Water Scientist/Project Manager, Coastal Systems Group, School for Marine Science and Technology, University of Massachusetts Dartmouth, prepared a report for Dennis and Barnstable County with analysis and recommendations of this collected data entitled Dennis Freshwater Ponds: Water Quality Status and Recommendations for Future Activities Final Report, September 2009. The report, which is found on the website I previously forwarded to you, focused on six ponds selected for analysis by the DEN-WQAC: Bakers, Cedar, Coles, Eagle, Flax, and Scargo. Five additional ponds were also tested throughout this time: Fresh, Hiram, North Simmons, Run, and White’s.”)*

Comment: All eleven ponds we have sampled should be on the 2010 integrated list of all of the waters of Massachusetts.

Response: The Integrated List of Waters does not contain all of the waters of Massachusetts, as suggested by this comment. Waterbodies that have never been assessed by the MassDEP do not appear anywhere on the list because resources are unavailable to input the entire inventory of surface waters in Massachusetts into the database where assessments are stored. New waters are only added to the database and, thus, appear on the list, as assessments are completed for those waters for the first time.

Comment: Based on the analysis in the report, we would suggest that Bakers Pond with its high quality and low nutrient levels should be listed as a Category 2 pond (Attaining Some Uses: Other Uses Not Assessed). The other ponds that were assessed in the report (Cedar, Coles, Eagle, Flax, and Scargo) could be listed as Category 5 ponds (Waters requiring a TMDL). Among these five ponds, Cedar and Scargo have average conditions that do not meet the minimum numeric dissolved oxygen standards in the state Water Quality Regulations. These clearly should be in Category 5. The other three ponds

(Coles, Eagle, and Flax) meet the state dissolved oxygen minimums, but have excessive chlorophyll and phosphorus concentrations. These ponds appear to be impaired by Cape Cod standards developed using EPA methods, but current state regulations are not clear on how the state DEP would regard these ponds. We would like some feedback from DEP regarding the classification of these waters. In reviewing the Report, I assume you will also make recommendations to the Town including whether there is a need to establish Total Maximum Daily Loads (TMDLs) for these three ponds.

Response: Mass DEP has established criteria for receiving and evaluating scientific data and information from outside sources, such as other state and federal agencies, universities and citizen monitoring groups. MassDEP will accept and review data and information pertaining to the quality of Massachusetts' waters if the following are provided: 1) an appropriate Quality Assurance Project Plan (QAPP) including a laboratory Quality Assurance/Quality Control (QA/QC) plan, 2) use of a state certified lab (certified for the applicable analyses), 3) a description of data validation and management QA/QC, and 4) all of the information is documented in a citable report that includes the QA/QC analyses. MassDEP has reviewed the report entitled *Dennis Freshwater Ponds: Water Quality Status and Recommendations for Future Activities* (Final Report, September 2009) in light of the requirements listed above and has found it to be deficient in a number of areas that limit its use for making assessments and listing decisions pursuant to sections 305(b) and 303(d) of the Clean Water Act. For example, the availability of a QAPP is not mentioned in the report and little information is presented on the field and laboratory techniques used for this sampling program. Furthermore, no raw data or quality assurance data are provided, only reference to another report or unpublished data from the Pond and Lake Stewards (PALS) Program. While it is possible that the design and implementation of the Dennis Freshwater Ponds Study was appropriate to meet the goals and objectives of PALS, the information available from the report is not sufficient to determine its suitability for use for assessment and listing pursuant to the Clean Water Act. More discussion of MassDEP's general issues and concerns pertaining to the PALS monitoring projects can be found in the response to comments of the Cape Cod Commission later in this document.

While the deficiencies identified above preclude the use of the Cape Cod Commission's *Dennis Freshwater Ponds* report, in its present form, for making assessments and listing decisions pursuant to the Clean Water Act, it should be noted that MassDEP is currently performing a new round of assessments for Cape Cod, the results of which will inform the 2012 Integrated List of Waters. To that end, you are invited to resubmit the report along with the necessary documentation in accordance with the criteria presented above. If a QAPP is not available, a copy of a PALS methodology document is requested that describes in detail the field and laboratory methods employed by the monitoring program. In addition, complete data sets should be submitted for each pond, including QC data and analyses.

### **3) Nashua River Watershed Association**

*(The NRWA letter began: "Please accept the following comments from the Nashua River Watershed Association (NRWA) regarding the MassDEP's Year 2010 Integrated List of Waters for the Nashua River watershed. One of the NRWA's primary goals is "to restore and protect water quality and quantity for people, fish, and wildlife." It is with this goal in mind we offer the comments. NRWA's Water Monitoring Program is in its 18th year. Volunteers collect samples once each month from April through October. DEP has used NRWA data in their assessments reports; however, we feel the NRWA sometimes covers a larger geographic area than can be covered by the DEP, and some of these comments reflect those data.")*

Comment: Catacoonamug Brook (8144525); Segment MA81-16: NRWA has documented spikes of *E. coli* in Catacoonamug Brook (up to 344.8 CFU/100ml). Low flow has occasionally been an issue along this segment, as Lake Shirley is refilled after winter drawdown for weed control. DFW has not been able to stock the brook on occasion due to low flows in this segment. River Instream Flow Stewards (RIFLS) (Div. of Ecological Restoration) installed a stream gage near the outlet from Lake Shirley to track the flow in the brook. Catacoonamug Brook should remain on Alert Status for Aquatic life; "Uses Attained" should not include "Aquatic Life."



Response: As mentioned in the NRWA's introduction above, the MassDEP has utilized NRWA's water quality data when performing its Nashua River Watershed assessments in the past. However, only NRWA data that were collected through 2006 were available at the time that the most recent assessment was completed (see <http://www.mass.gov/dep/water/resources/81wqar08.pdf>). NRWA's comments pertaining to Catacoonamug, as well as other brooks, reflect more recent NRWA data (i.e., 2007 – 2010) that, until now, MassDEP had not reviewed for use in making its assessments and listing decisions. As a result of this comment, however, MassDEP has now completed a review of the newer NRWA Water Monitoring Program data and information available from their web site and has determined that the 2008 and 2009 *E. coli* data are adequate for MassDEP to use for assessment decision-making.

The NRWA-documented high spikes of *E. coli* in Catacoonamug Brook are cause for concern. However, when assessing recreational uses, MassDEP relies on the geometric mean for a series of five or more samples collected during the designated primary or secondary contact recreational season. NRWA sampling at one site on Catacoonamug Brook in 2008 yielded a geometric mean of 58 cfu/100 ml. In 2009 there were two sites sampled with resulting geometric means of 51 and 6 cfu/100 ml. These values are well below the surface water quality standards of 126 and 235 cfu/100ml for primary and secondary contact recreation, respectively. As such, MassDEP contends that both of these uses are supported.

When making listing decisions in accordance with EPA regulations pursuant to §303(d) of the Clean Water Act, states must categorize waters as either supporting (i.e., attaining) or not supporting (i.e., impaired) their designated uses, or, in cases where insufficient data and information exist, identify them as "Not assessed". Furthermore, "Threatened" waters – those waters that currently attain their uses, but are expected to be impaired by the next listing cycle – must also be included in Category 5 (i.e., the 303(d) List). By contrast, MassDEP sometimes applies the designation "Alert Status" to a segment when completing assessments for the purpose of reporting the status of its waters pursuant to §305(b). "Alert Status" may be assigned to segments that are supporting their uses or that are currently not assessed. It is used to identify segments that may exhibit potentially emergent water quality or habitat problems that warrant additional monitoring. Segments labeled with an "Alert Status" are neither impaired nor threatened within the context of the §303(d) designations defined above. In the case of Catacoonamug Brook, MassDEP has determined that the primary and secondary contact recreational uses are supported, but the segment could be assigned an "Alert Status" due to the spikes in *E. coli* counts identified by the NRWA. Likewise, the aquatic life use is currently attained, but the segment will remain on "Alert Status" due to an apparent imbalance in the structure of the resident fish community that should be further investigated.

Comment: James Brook (8143925); Segment MA81-20: NRWA does not believe James Brook meets Primary Contact use. The NRWA has documented *Escherichia coli* impairment to the headwaters of this brook in downtown Groton near Court Street. *E. coli* data from the past two years at this site has ranged from a low of 30.5 to a high of 1,986.3 CFU/100ml, with geomeans of 132.8 and 130.59 in 2008 and 2009, respectively, and a result from May 2010 of 275 CFU/100ml.

Response: NRWA data available from one sampling station on James Brook indicates a geometric mean of 135 cfu/100 ml in 2008 and 131 cfu/100 ml in 2009, so MassDEP concurs that the primary contact use of James Brook is impaired. Therefore, this segment will be added to Category 5 (i.e., 303d List) of the Final version of the 2010 Integrated List with "*Escherichia coli*" designated as the cause of impairment.

Comment: Sucker Brook (8143625); Segment MA81-23: NRWA does not believe Sucker Brook meets Primary Contact use. *E. coli* geomean results were 127.4, 132.3, 125.3 and 87.0 CFU/100ml for 2006 through 2009, respectively.

Response: When assessing recreational uses, MassDEP relies on the geometric mean for a series of five or more samples collected during the designated primary or secondary contact recreational season. NRWA sampling results from two sites on Sucker Brook in 2008 yielded geometric means of 94 and 60 cfu/100 ml. In 2009 the two sites resulted in geometric means of 87 and 125 cfu/100 ml. These values are below the surface water quality standards of 126 and 235 cfu/100ml for primary and secondary contact recreation, respectively. Therefore, MassDEP has concluded that both of these uses are supported.

Comment: Wekepeke Brook, Lancaster: NRWA requests, once again, that Wekepeke Brook in Lancaster, (including the impoundment on Wekepeke Brook, Bartlett Pond), be included in Category 5 “Waters Requiring a TMDL.” For several years, NRWA volunteer monitors have documented very high *E. coli* results at this location. Geomeans for the samples collected from 2006 through 2009 were: 699.8, 700.6, 543.7 and 54.4 CFU/100ml, respectively (samples in 2009 were collected slightly downstream). *E. coli* results for April and May 2010 were 313 and 365.4 CFU/100ml. Bartlett Pond in Lancaster is surrounded by conservation land and is a popular picnicking and fishing location. Primary and secondary contact recreation and aquatic life uses should be evaluated.

Response: The NRWA-documented high *E. coli* values in Wekepeke Brook are cause for concern. Once again, when assessing recreational uses, MassDEP relies on the geometric mean for a series of five or more samples collected during the designated primary or secondary contact recreational season. NRWA performed sampling at two sites in the Wekepeke Brook watershed in 2008; however, the Brockelman Road site was actually located on a tributary to the brook and the bacteria counts were within acceptable limits. Only four samples were obtained from the Route 117 site during the Primary Contact Use season, and these yielded a geometric mean of 681 cfu/100 ml. (185 cfu/100 ml, if a minimum value is substituted for a fifth round of sampling.) In 2009, only the Route 117 site (below the Bartlett Pond dam) was sampled. Again, only four samples were collected and, based on QC duplicate analysis, one of the samples likely needs to be censored. Nonetheless, the Primary Contact recreational use can be considered impaired by adding one “best case” sampling event to the other four values from 2008 and still producing an unacceptable geometric mean. Therefore, Wekepeke Brook will be added to Category 5 (i.e., 303d List) of the Final version of the 2010 Integrated List with “*Escherichia coli*” designated as the cause of impairment.

Comment: Monoosnoc Brook (8144825); Segment MA81-13: NRWA agrees with including this brook on the Category 5 list for *E. coli*.

Response: No response necessary

Comment: Squannacook River (8143950); Segment MA81-19: NRWA believes all of the Squannacook River should be placed on the Category 5 list for low pH, temperature and lack of a cold water assemblage.

Response: Squannacook River Segment MA81-19 is classified in the Massachusetts Surface Water Quality Standards as a Class B Warm Water Fishery and, as such, the “lack of a cold water assemblage” is not an impairment of the aquatic life use of this water. Furthermore, the most recent MassDEP assessment revealed that warm-water criteria are consistently met in this segment, also eliminating “temperature” as an appropriate stressor. Finally, while the upstream segment of the Squannacook River, MA81-18, is listed as impaired by low pH, this was based on over 100 samples from multiple sources (i.e., MassDEP/DWM, MassDEP/CERO and NRWA) and was corroborated by biological data that carry more “weight” when completing assessments (all other things being equal) than chemical or physical data alone. Segment MA81-19, however, was only sampled four times in 2003 by MassDEP/DWM – with no pH violations found – and 20 times by NRWA from 2003-2006 resulting in 7 violations. MassDEP finds the argument for listing this segment for low pH to be less compelling, given the fewer sampling events and the lack of other corroborating evidence, such as biological sampling results.

Comment: “South Branch” Nashua River (8143500); Segment MA81-08: NRWA would prefer to have this section of the South Nashua River, from Lancaster Mill Pond to the Clinton WWTP, on the Category 5 list with the lower section of the South Nashua (Clinton WWTP to confluence with North Nashua River) to evaluate the effects of fluctuations in flow on aquatic life and water quality. The flow from the Wachusett Reservoir has increased since the assessment was performed, but an evaluation of the impacts with regard to the frequency, timing, duration and magnitude of the flows has not been performed.

Response: MassDEP acknowledges that the potential effects of flow alteration downstream from Wachusett Reservoir should be investigated. In fact, the following recommendations appear with the

assessment of Segment MA81-08 in the most recent MassDEP water quality assessment of the Nashua River Watershed: "Collect data to determine the frequency, duration, and spatial extent of the low flow conditions in the Nashua River. Optimize withdrawal and release practices from the Wachusett Reservoir to maintain a minimum flow and natural flow regime in the Nashua River" (see p. 48 in the assessment report at <http://www.mass.gov/dep/water/resources/81wqar08.pdf>). However, it would be premature to list this segment as impaired by flow alterations until data and information are obtained that confirm that this is indeed the case. Furthermore, the CWA distinguishes between "pollutants" such as nutrients, metals, pesticides, solids and pathogens that all require TMDLs and "pollution" such as low flow, habitat alterations or non-native species infestations that do not require TMDLs. Therefore, this segment will be placed in Category 4c, and not 5, if and when flow impacts are identified, and its restoration, if needed, will require measures other than TMDL development and implementation.

Comment: Falulah/Baker Brook: This brook is a major tributary to the North Nashua River, flowing from Ashby, receiving CSOs in Fitchburg, and joining the North Nashua near the Fitchburg Airport. It should be on the "needs to be assessed" list.

Response: While a "needs to be assessed list" is not a true category of the Integrated List, Category 3 includes those waters for which no uses are currently assessed and, as such, a case could be made that all Category 3 waters need to be assessed. Unfortunately, the Integrated List is not a complete inventory of all of the surface waters in the Commonwealth. Waterbodies, such as Falulah and Baker brooks, that have never been assessed by the MassDEP do not appear anywhere on the list because resources are unavailable to input the entire inventory of surface waters in Massachusetts into the database where assessments are stored. New waters are only added to the database and, thus, the List as assessments are completed for those waters for the first time. Nonetheless, waters that do not appear in any category of the list are, by definition, Category 3 ("unassessed") waters and should be candidates for future assessment as resources allow.

#### **4) Connecticut River Watershed Council**

*(By way of introduction the CRWC wrote: "Thank you for the opportunity to comment on the proposed Massachusetts Year 2010 Integrated List of Waters. On behalf the Connecticut River Watershed Council (CRWC) and its members, I submit the following comments. CRWC is a non-profit organization that works to protect the watershed from source to sea. As stewards of this heritage, we celebrate our four-state treasure and collaborate, educate, organize, restore, and intervene to preserve the health of the whole for generations to come. In particular, we are looking forward to the day when the entire length of the Connecticut River will be fishable and swimmable".)*

Comment: Page 14 of the Integrated List briefly explains the process MassDEP uses for accepting 3rd party data. It sounds as if MassDEP may not incorporate 3rd party data until these data have been considered for a basin water quality assessment, completed every five years. If this is the case, CRWC thinks this leads to an unacceptably long lag time. For example, does this mean that Connecticut River basin data collected between 2003 (the date of the last water quality assessment, published in 2008) and 2009 may have to wait for the 2008 assessment that may be published in 2013 (or later, considering the recent DEP staff cuts in this department), which will then will be considered for the 2014 Integrated List?

Response: It is true that MassDEP only assesses the Connecticut River Watershed once every five years, and it is also true that the completion of watershed assessments is presently behind schedule. However, this does not mean that data and information collected during the interim years are not used until the next regularly scheduled watershed-wide assessment. Rather, MassDEP considers for listing third-party data *pertaining to any watershed in Massachusetts* that are submitted as part of the public review process for each Integrated List. Consistent with EPA guidelines requiring states to review all readily available data and information, MassDEP assesses the applicability of all data submitted during the public comment period, and if appropriate, makes adjustments to the final version of the Integrated List. As always, data and information supporting a review comment must be submitted in accordance with the MassDEP data submittal guidelines, and doing so does not guarantee that the data will be used by the MassDEP.

Comment: In the bibliography, we note that the most recent MassDEP data used in this 2010 list was collected in 2004, with many water quality assessments using data from the late 1990's to early 2000's. A six+ year lag time for MassDEP's own data is unacceptably long.

Response: MassDEP acknowledges the unfortunate lag time between its collection of monitoring data in a particular watershed and the completion of the corresponding watershed assessment. However, it should be noted that sources of information other than MassDEP's own data are also used for making assessments, and many of these are timelier with respect to the actual completion date of the assessment. For example, the title of the *Connecticut River Basin 2003 Water Quality Assessment Report* reflects the year of the most recent MassDEP monitoring survey data used in the assessment. However, the report was actually published in 2008 and an examination of the Literature Cited reveals that many sources of data and information used for the assessment were current at that time. Nevertheless, MassDEP continues to strive for more timely assessments within the constraint of limited resources.

Comment: If MassDEP is considering more recent 3rd party data for the 2010 list, we think that in the Connecticut River basin, there may be sufficient data to list Barton Cove as impaired for bacteria. Bacteria data was collected on the Connecticut River by Pioneer Valley Planning Commission and UMASS Water Resources Center during 2008 and 2009. See the data at their website at <http://www.umass.edu/tei/mwwp/ctrivermonitoring.html>. The project has a QAPP that was reviewed and approved by MassDEP and USEPA. The data from 2009 shows numerous instances of high bacteria at Barton Cove during dry weather. Sites in Northfield experienced high bacteria only during wet weather.

Response: MassDEP has reviewed the bacteriological data (*E. coli*) from Barton Cove cited above. Five samples collected in 2008 yielded a geometric mean of 45 cfu/100 ml, while 24 samples collected in 2009 yielded a geometric mean of 190 cfu/100 ml. From this analysis, MassDEP concurs that the Primary Contact Use of Barton Cove is impaired and, therefore, "*Escherichia coli*" will be added to this segment (MA34122) as a cause of impairment in the Final version of the 2010 Integrated List.

Comment: If MassDEP is considering more recent 3rd party data for the 2010 list, we think that in the Connecticut River basin, there may be sufficient data to list Stony Brook and Buttery Brook in South Hadley as impaired for bacteria. The Town of South Hadley monitored Buttery Brook and Stony Brook in 2009 as part of a USEPA Supplemental Environmental Project (SEP) following a violation of their NPDES permit. The data from this is located online at [http://www.southhadley.org/Pages/SouthHadleyMA\\_DPW/control/Brooks](http://www.southhadley.org/Pages/SouthHadleyMA_DPW/control/Brooks). Every effort was made to collect data in a manner that could be used by MassDEP in their water quality assessments. The project had a QAPP that was reviewed and approved by MassDEP and USEPA.

Response: MassDEP has reviewed the Supplemental Environmental Project (SEP) Final Report as well as the information at the website cited above and concurs that the data collected under the SEP can be used for its water quality assessments. While Stony Brook (MA34-19) is already 303(d)-listed for *E. coli* and turbidity, Buttery Brook will be added to the Final List as impaired by *E. coli*.

Comment: If MassDEP is considering more recent 3rd party data for the 2010 list, we think that in the Westfield River basin there may be sufficient data to list several streams for bacteria impairment, and investigate pH at one site on the Westfield River. The Pioneer Valley Planning Commission, Westfield State College, and Westfield River Watershed Association got a grant to do monitoring. The project descriptions and results are online at <http://envcenter.wsc.ma.edu/water-quality-monitoring>. The project has a QAPP that was reviewed and approved by MassDEP and USEPA.

Response: MassDEP reviewed the Westfield River Water Quality Monitoring Project Final Report prepared by the Pioneer Valley Planning Commission (PVPC) and concluded that the data collected under this CWA §604b grant project could be used for its water quality assessments. As a result, the status of the primary and secondary contact recreational uses of six existing and three new stream segments was determined from the PVPC monitoring program data. MassDEP's findings are summarized below and all of the new assessments and listing decisions will be reflected in the Final List. The primary

contact recreational use was found to be impaired in four segments that were previously not assessed (i.e., Ashley, Jacks and Potash brooks, and Little River Segment MA32-36), and these segments and/or impairments will be added to the 303(d) List. By contrast, three other brooks that were previously not assessed – Bradley, Cook and Pond – were found to be supporting recreational uses. Finally, the East Branch of the Westfield River (Segment MA32-04), which was previously on the 303(d) List because earlier assessments had indicated impairment of the primary contact recreational use, was determined, from the PVPC data, to be supporting both recreational uses, and this segment will be removed from the Final 303(d) List.

Segment	Waterbody	Proposed 2010 List		Final 2010 List	
		1 <sup>o</sup> Contact	2 <sup>o</sup> Contact	1 <sup>o</sup> Contact	2 <sup>o</sup> Contact
MA32-04	East Branch Westfield River	Impaired	NA	Supported	Supported
MA32-21	Bradley Brook	NA	NA	Supported	Supported
MA32-24	Pond Brook	NA	NA	Supported	Supported
MA32-22	Potash Brook	NA	NA	Impaired	Supported
MA32-36	Little River	NA	NA	Impaired	Supported
MA32-08	Little River	Impaired	Supported	Impaired	Impaired
MA32-37	Ashley Brook (new segment)	NA	NA	Impaired	Supported
MA32-38	Cook Brook (new segment)	NA	NA	Supported	Supported
MA32-39	Jacks Brook (new segment)	NA	NA	Impaired	Supported

**Comment:** We see that Lower Highland Lake, in the Connecticut River basin, is listed in Category 3. This pond is located mostly within DCR-owned DAR State Park and is heavily used for swimming and paddling. Does DCR conduct water quality samples at its state park beaches, and if so, is the data not of sufficient quality to use in the Integrated List?

**Response:** The use of beach testing data for MassDEP watershed assessment and subsequent listing decisions is not as constrained by uncertainty with respect to the quality of the data, as it is by the availability and reporting of those data. The minimum standards for bathing beaches, found at 105 CMR 445.000, require that state agencies, such as DCR, that own or operate bathing beaches conduct weekly bacteriological testing and report *violations* of the standards immediately to the MassDPH and applicable local boards of Health. The deadline for reporting all other results, however, is not until October 31 of each year, and MassDPH reports that compliance with this latter requirement, particularly for freshwater beaches, is variable at best. Passage of the Federal BEACH Act of 2000 (“Beaches Bill”) has led to more consistent and accurate reporting on the status of coastal beaches. In any case, because of the large number of bathing beaches in Massachusetts and the inconsistencies in reporting of beach data, MassDEP is unable to examine all of these data directly to determine their validity and applicability for assessing the primary contact recreational use. Rather, MassDEP relies on beach closure information, which is more readily available from MassDPH, to inform its recreational use assessments. There is no question that this approach captures those waters that are not supporting their designated recreational uses, but greatly underestimates the number of waterbodies in Massachusetts that are in support of those uses. Nonetheless, while a true picture of the number of waters supporting recreational uses cannot be obtained from the Integrated List, MassDEP contends that the number of impaired waters requiring the implementation of TMDLs is more accurately represented.

**Comment:** Ware River segment 36-03 has been added to the Category 5 list based on mercury in fish tissue. Is this impairment covered under the TMDL for mercury in fish tissue, and if so, should this river segment be listed under Category 4a instead?

**Response:** Ware River Segment MA36-03 is NOT covered under the TMDL for mercury in fish tissue. The *Northeast Regional Mercury Total Maximum Daily Load* to which this comment refers was developed by the six New England states, New York and the New England Interstate Water Pollution Control Commission (NEIWPCC) and submitted to the EPA in 2007. This TMDL document outlines a strategy for reducing mercury concentrations in fish in fresh waters. In the Northeast, the majority of mercury pollution

is a result of atmospheric deposition. However, other sources of mercury include wastewater effluents and hazardous waste sites. Appendix A of the TMDL report presents a list of the waterbodies that each state designated as covered by the regional TMDL. As such, Massachusetts chose to include only those lakes, ponds and reservoirs that were presumed to be impaired solely as the result of atmospheric deposition, and excluded waters where other potential sources could exist. Therefore, lakes and ponds impaired by local sources of mercury, and all river segments impaired by mercury, whether or not they receive wastewater effluent discharges, were omitted from the regional mercury TMDL. The complete regional mercury TMDL report can be found at <http://www.mass.gov/dep/water/resources/mertmdl.doc>.

Comment: We think the table formerly included as Appendix 2 in the 2008 Integrated List, Waterbody Segments and Integrated List Categories by Major Watershed, was extremely helpful. We request that DEP add this to the 2010 list. Without it, one must look through every category to find out if the water body is even listed in this year's Integrated List.

Response: MassDEP does intend to include the table entitled "Waterbody Segments and Integrated List Categories by Major Watershed" in the Final version of the 2010 List when it is published.

## 5) Center for Biological Diversity

*(The comment letter began: "On behalf of the Center for Biological Diversity, these comments are submitted in response to the Massachusetts draft list of impaired water bodies pursuant to the Clean Water Act section 303(d). The draft 303(d) list failed to include any ocean waters that are threatened or impaired by ocean acidification. This comment letter supports the inclusion of Atlantic Ocean waters on the list.*

*The ocean absorbs carbon dioxide causing seawater to become more acidic. Among various adverse impacts to marine life, this process—termed ocean acidification—impairs the ability of calcifying organisms to build their protective structures. Already ocean pH has changed significantly due to human sources of carbon dioxide. On the current trajectory, ocean ecosystems are likely to become severely degraded due to ocean acidification.*

*On July 27, 2009, the Center for Biological Diversity submitted scientific information supporting the inclusion of ocean waters on Massachusetts' 303(d) list. Since then, it has only become more apparent that ocean acidification poses a serious threat to seawater quality with adverse effects on marine life. Nonetheless, Massachusetts' draft 303(d) list failed to include any ocean segments threatened or impaired by ocean acidification. The overwhelming scientific evidence supports the inclusion of ocean waters on the 303(d) list because ocean acidification is causing degradation of seawater quality in violation of Massachusetts water quality standards and threatens to become worse. This letter and its source documents should be taken under consideration in support of listing ocean waters, and the Center's previous letter and documents are incorporated by reference.*

*Massachusetts is urged to take ocean acidification seriously and to take prompt steps to halt this threat to our ocean ecosystems. Massachusetts should place ocean water segments subject to its jurisdiction on the 303(d) list and develop a total maximum daily load for carbon dioxide pollution that is impairing our seawater quality."*

*Note: Accompanying the letter was a brief narrative summary of what is currently known about ocean acidification and a compact disc containing approximately fifty research articles on the subject.)*

Comment: The Clean Water Act Requires Massachusetts to Include Ocean Waters Threatened or Impaired by Ocean Acidification on Its 303(d) List. EPA has acknowledged the reach of the Clean Water Act to address ocean acidification (EPA 2009). Moreover, the EPA is taking steps that affirm states' duties and authorities to address ocean acidification under the Clean Water Act (See e.g. <http://www.nytimes.com/gwire/2010/03/12/12greenwire-some-see-clean-water-act-settlement-opening-new-4393.html>). Additionally, the Clean Water Act's section 303(d) is an effective mechanism to address

atmospheric deposition of carbon dioxide (CO<sub>2</sub>) and has been used to address parallel pollution problems such as mercury and acid rain. EPA's *Information Concerning 2008 Clean Water Act Sections 303(d), 305(b), and 314 Integrated Reporting and Listing Decisions* acknowledges that atmospheric deposition must be a factor considered by states during their water quality assessments (available at [http://www.epa.gov/owow/tmdl/2008\\_ir\\_memo.html](http://www.epa.gov/owow/tmdl/2008_ir_memo.html)). Massachusetts must list ocean waters as impaired for ocean acidification because designated uses for shellfish, aquatic life, and wildlife are not being attained.

**Response:** MassDEP concurs that ocean acidification is a serious issue of global concern and the Commonwealth is including the expansion of ocean monitoring and assessment activities as an element of its strategy for assessing and managing climate change. However, insufficient data and information currently exist to suggest that designated uses of Massachusetts' ocean waters are currently threatened or not supported as the result of acidification and, therefore, MassDEP does not agree that these waters should be placed on the 303(d) List. In accordance with EPA regulations and guidance pertaining to section 303(d) of the CWA, MassDEP only assesses and lists waters for which credible scientific data are available *from those waters*. While substantial data and information pertaining to ocean acidification are available from other regions of the world, as evidenced from the literature cited by the Center for Biological Diversity, none of the data and information contained in the submitted documents were collected from waters within Massachusetts' jurisdiction. It is presumptive and inappropriate to extrapolate research results from one region to another, given the complexity and site-specificity of variables affecting the quality of coastal and marine waters.

**Comment:** The marine pH water quality standard requires that pH shall not deviate more than 0.2 standard units outside of the natural background range, and that there shall be no change from natural background conditions that would impair any use. 314 Mass. Code Regs. Sec. 4.05 (4)(a)(3)&(b)(3). This standard, however, is inadequate to protect marine fauna and flora. In light of this insufficiency, Massachusetts should gauge the need to list waters due to ocean acidification on the 303(d) list by the impacts on water quality and marine life.

**Response:** As indicated in this comment, the Massachusetts' surface water quality standards are codified in regulation at 314 CMR 4.00 and, as such, form the basis for assessing the use-support status of Massachusetts' waters. At the time it was published and approved by the EPA, the marine water quality standard for pH was considered protective of marine life based on the latest research and information that was available. Nonetheless, EPA is required under CWA § 304(a)(1) to develop, publish and revise water quality criteria based on the most up-to-date scientific information. In the case of marine pH, EPA is currently reviewing its aquatic life criterion based on scientific data pertaining to ocean acidification received in response to the Notice of Data Availability published in the Federal Register Vol. 74, No. 71) dated April 15, 2009. EPA will review these data and, if warranted, publish new aquatic life criteria for pH in marine waters. If applicable, Massachusetts will revise its pH standard accordingly, likely during the subsequent triennial review of water quality standards mandated by the CWA.

**Comment:** Massachusetts Is Required to Consider Scientific Evidence of Ocean Acidification Submitted by the Center for Biological Diversity. In preparing its 2010 303(d) list, Massachusetts has a duty to consider the information submitted by the Center for Biological Diversity. The regulations governing implementation of the Clean Water Act's section 303(d) *require* that a state "evaluate all existing and readily available water quality-related data and information to develop the list." 40 C.F.R. § 130.7(b)(5); *see also Sierra Club v. Leavitt*, 488 F.3d 904 (11th Cir. 2007). The data and information provided by the Center for Biological Diversity on ocean acidification is from highly credible scientific journals and reports. Not only is the scientific understanding of ocean acidification well established, but also the magnitude of the problem and likely effects are predictable with a high degree of certainty (Secretariat of the Convention on Biological Diversity 2009).

**Response:** The regulation governing § 303(d) that requires states to "assemble and evaluate all existing and readily available water quality-related data and information to develop the § 303(d) list" does not mandate that states use all data and information regardless of the quality or representativeness of that information. In fact, the EPA strongly encourages states to establish minimum data requirements and

acceptable criteria for submitting data for consideration for listing. MassDEP does not dispute the assertion by the Center for Biological Diversity that the data and information they provided on ocean acidification is from highly credible scientific journals and reports. What is much less certain is the representativeness and applicability of this information to the specific coastal and marine waters of Massachusetts. As indicated earlier, none of the data and information contained in the submitted documents were collected from waters within Massachusetts' jurisdiction. In fact, there are not a lot of data available from Massachusetts' marine waters that can be used to assess potential effects of ocean acidification. When preparing the "Science Framework" supporting the Massachusetts Ocean Management Plan, staff members of the Office of Coastal Zone Management reviewed pH measurements taken from Massachusetts Bay by the Massachusetts Water Resources Authority (MWRA). No violations of the pH standard were observed, and data were insufficient for determining long-term trends.

Comment: The materials submitted with the previous letter and here support a finding that Massachusetts's oceans are threatened or impaired. The purpose of water quality standards is to protect the biological diversity of Massachusetts's waters as well as recreational and commercial uses. Ocean acidification will have significant negative impacts on the survival of calcareous organisms as well as fish and other marine species. Commercial and recreational uses will be harmed as a result, which will particularly affect the tourism and fishing industries that are so important to Massachusetts's residents. We urge Massachusetts to add ocean water segments to its list of threatened and impaired waters under section 303(d) of the Clean Water Act. Massachusetts has the authority and the duty to address this serious water quality problem—ocean acidification.

Response: MassDEP agrees that ocean acidification is an issue of global concern that must be closely monitored and that excess carbon dioxide emissions contributing to this problem should be managed through strict emission limits on greenhouse gases (GHG). In fact, Massachusetts has joined with other northeastern states in addressing GHG emissions through the Regional Greenhouse Gas Initiative (RGGI), a cap-and-trade program designed to reduce GHG emissions from electricity generation. MassDEP does not believe, however, that the TMDL program is an appropriate mechanism for effectively managing ocean acidification. TMDLs are typically derived and implemented on a local scale, at the level of individual watersheds that are within the jurisdiction of states to regulate. The global extent of ocean acidification places this issue well beyond the capacity of individual states, or even regions, to manage. Therefore, the problem of ocean acidification, as well as other issues related to climate change, is more equitably and effectively addressed by the federal government through the development of a national program and international agreements. At the same time, Massachusetts will continue to monitor the effects of climate change on its marine resources through the implementation of the strategies set forth by the Climate Change Adaptation Advisory Committee (CCAC) and the Ocean Management Plan. For more information on both of these initiatives of the Massachusetts Executive Office of Energy and Environmental Affairs (EOEEA), please visit <http://www.mass.gov/dep/public/committee/ccaac.htm> and <http://www.env.state.ma.us/eea/mop/final-v2/v2-text.pdf>.

## **6) The Coalition for Buzzards Bay**

*(By way of introduction, the Coalition wrote: "Please accept the following as The Coalition for Buzzards Bay's (the Coalition's) formal request to include West End Pond in Cuttyhunk as a Category 5 water, as impaired for nutrients, on the Department of Environmental Protection's ("DEP's") final Massachusetts Year 2010 Integrated List of Waters. The Coalition is a non-profit membership organization dedicated to the restoration, protection, and sustainable use and enjoyment of Buzzards Bay and its watershed. We represent more than 6,700 individuals, families, organizations and businesses in southeastern Massachusetts who are committed to maintaining the health and ecological vitality of the Bay.*

*Pursuant to §303(d) of the Clean Water Act and the implementing regulations at 40 CFR 130.7, each state shall identify those waters within its boundaries for which the effluent limitations are not stringent enough to maintain water quality standards applicable to such waters. 33 USC §1313(d)(1)(A). Federal regulations also dictate that in promulgating the 303(d) list the state shall assemble and evaluate all*



existing and readily available water quality-related data and information. Such information includes, but is not limited to, waters for which water quality problems have been reported by local, state, or federal agencies; members of the public; or academic institutions. These organizations and groups should be actively solicited for research they may be conducting or reporting. 40 CFR 130.7(b)(5)(iii). As a membership supported organization, it is under this legal framework that the Coalition submits this request to list West End Pond as impaired for nutrients on the 2010 list of Category 5 waters.

The Coalition's 303(d) submittal substantially conforms to the DEP Data Submittal Guidelines in the Monitoring Method Guidance document CN 0.71 (September, 2004) as well as the Recommended Content of Data Report Submittals Monitoring Method Guidance CN 0.74 (November, 2006). The Coalition notes that the DEP Data Submittal Guidelines are recommended guidelines and are intended to serve as guidance in order to help evaluate the accuracy, precision and representativeness of the data and are not intended to serve as regulations or requirements. Therefore, the Coalition expects that if DEP finds additional information necessary, they will present the Coalition with an opportunity to comply."

Comment: Based on the Coalition's water quality monitoring data, which meets DEP and EPA reliability requirements as discussed above and detailed below, the Coalition requests West End Pond, classified as SA waters pursuant to 314 CMR 4.00, be added to the Commonwealth of Massachusetts' 303(d) list of Category 5 waters requiring a TMDL for nutrients. At present, West End Pond is listed as impaired for pathogens and the Coalition requests that it additionally be listed for nutrients.

The Massachusetts Surface Water Quality Standards for Class SA waters identify these waters as excellent habitat for fish, other aquatic life and wildlife and for primary and secondary contact recreation. The standards also clearly state that these waters shall have excellent aesthetic value (314 CMR 4.05(4)(a)), have dissolved oxygen levels not below 6 mg/l, requiring that natural seasonal and daily variations above this level be maintained (314 CMR 4.05(4)(a)(1)). The following submittal demonstrates that West End Pond falls short of meeting these Massachusetts Surface Water Quality Standards for nutrients.

The Coalition submits dissolved oxygen data (concentration and saturation), chlorophyll data, and total nitrogen data in both graphic presentation as well as the quality-assured raw data. The Coalition notes that the Division of Watershed Management is interested in the quality assured raw data pursuant to the guidance in Monitoring Method Guidance CN 0.74 (November, 2006) and this is the data provided herein. Furthermore, this data was collected consistent with the 1996, 2001, 2006, and 2009 approved QAPP. Together, this data clearly supports the listing of West End Pond under Category 5 as impaired for nutrients.

Response: After a preliminary review of this comment and supporting documentation, MassDEP has concluded that the conditions in West End Pond appear to be natural and, thus, not a violation of Water Quality Standards. It is correct that "the Massachusetts Surface Water Quality Standards for Class SA waters identify these waters as excellent habitat for fish, other aquatic life and wildlife and for primary and secondary contact recreation" and that "the standards also clearly state that these waters shall have excellent aesthetic value (314 CMR 4.05(4)(a))." The Surface Water Quality Standards also specify, as noted in this comment, that Class SA waters should "have dissolved oxygen levels not below 6mg/l, requiring that natural seasonal and daily variations above this level be maintained (314 CMR 4.05(4)(a)(1))." However, the language in that section continues as follows: "Where natural background conditions are lower, DO shall not be less than natural background."

EPA guidance is also clear with regard to the listing of segments where a criterion has been exceeded, but the exceedance is the result of background or natural conditions: "If the state's water quality standards include a specific exclusion for exceedance caused by 'natural conditions', these segments would not be considered impaired (i.e., they could be excluded from Categories 4 and 5)" (Guidance for 2006 Assessment, Listing and Reporting Requirements Pursuant to Sections 303(d), 305(b) and 314 of the Clean Water Act", July 29, 2005, US EPA, Office of Water, p. 62). The Massachusetts Surface Water Quality Standards do contain such a provision. 314 CMR 4.03(5) states "Natural Background Conditions.

Excursions from criteria due to solely natural conditions shall not be interpreted as violations of standards and shall not affect the water use classifications adopted by the Department.”

A preliminary evaluation of the Coalition’s submittal, including an aerial view of West End Pond and USGS topographic maps of the surrounding land indicates that, as of the 2005 pictures, there is virtually no development or evidence of human influences anywhere near this water body. In addition, MassDEP has no permitted discharges in this general area. This certainly creates considerable uncertainty as to whether observed excursions from water quality criteria are from anything other than natural causes.

Comment: In addition to our request to list West End Pond as impaired for nutrient, the Coalition requests that DEP adequately prioritize the listed waters for Total Maximum Daily Loads (“TMDLs”). The Clean Water Act requires states to prioritize their listed waters based on the severity of their pollution and their beneficial use and to develop TMDLs in accordance with the priority ranking. 40 CFR 130.7(b)(4). In its 2006 guidance document, the EPA goes on to require that “Each listed pollutant-segment combination (i.e., those in Category 5) must receive a clear priority ranking...” 2006 EPA Guidance at 63. Furthermore, in *Friends of the Wild Swan, Inc. v. U.S. EPA*, the court found that “states are required to consider the severity of the pollution in the waterbody and beneficial uses offered by the waterbody in assigning priority rankings to waterbodies.” *Friends of the Wild Swan, Inc. v. U.S. EPA*, 130F. Supp.2d 1184, 1194 (D. Mt. 1999). In accordance with federal law, the 2010 list must establish a priority ranking for all listed water based on the severity of the pollution and the beneficial uses of the impaired water. Since previous Massachusetts Integrated Lists have not been prioritized, including the most recent 2008 list, it is imperative that the 2010 list is adequately prioritized to ensure compliance with the Clean Water Act.

Response: It is misleading to suggest that previous 303(d) lists were not prioritized for TMDLs and the EPA, through their approval process, confirmed that earlier lists met the requirements for targeting listed waters for TMDL development. Prioritization of Massachusetts’ waters for TMDL development is discussed, at some length beginning on p. 25 of the *Proposed Massachusetts Year 2010 Integrated List of Waters*. Due, in part, to the limitations of the databases used by MassDEP to store and report listing information, Massachusetts does not specifically identify each individual TMDL as high, medium or low priority. Instead, prioritization can be inferred from the TMDL schedule which is intended to communicate the State’s priorities to the public and the EPA and to assist with the allocation of resources to the TMDL development effort. Details pertaining to the status of TMDL development in Massachusetts, including detailed work plans, can be found under “Restore Degraded Water Quality” at <http://www.mass.gov/dep/water/priorities/sggwhome.htm#restore>.

The following excerpt from the EPA’s approval package for Massachusetts’ 2008 Integrated List submittal confirms that the manner in which MassDEP establishes priorities for TMDL development is consistent with EPA guidelines and regulations. “EPA has also reviewed the Commonwealth’s priority ranking of listed waters for TMDL development, and concludes that the Commonwealth properly took into account the severity of pollution and the uses to be made of such waters. The regulations at 40 CFR §130.7(b)(4) require states to prioritize waters on their 303(d) lists for TMDL development, and also to identify those WQLSs targeted for TMDL development in the next two years. In prioritizing and targeting waters, states must, at a minimum, take into account the severity of the pollution and the uses to be made of such waters. See CWA §303(d)(1)(A). As long as these factors are taken into account, the CWA provides that states establish priorities. States may consider other factors relevant to prioritizing waters for TMDL development, including immediate programmatic needs, vulnerability of particular waters as aquatic habitats, recreational, economic, and aesthetic importance of particular waters, degree of public interest and support, and state or national policies and priorities. See 57 Fed. Reg. 33040, 33044-45 (July 24, 1992).” The EPA went on to explain that “In order to set priorities for TMDL development MassDEP evaluated the causes and locations of impairments across the Commonwealth. The data on causes of impairments in assessed waters taken from the 2006 Integrated Report overwhelmingly indicated that the major causes of impairment are excess nutrients and pathogens. Excess nutrients and their associated effects, such as low dissolved oxygen and noxious aquatic plants, were identified as the cause of impairment in approximately 43% of the Commonwealth’s waters. The biggest single cause of impairment was found to be pathogens, which was identified as a problem in roughly 23% of the Commonwealth’s assessed waters...As a result, Massachusetts has placed, and will continue to place, a high priority on

these issues for TMDL development in the coming years.” And, finally, “In conclusion, EPA finds the TMDL prioritization and targeting approach used by Massachusetts to be reasonable considering all factors including the large number of waters on the list and the overall pace at which TMDLs will be developed.”

## 7) Cape Cod Commission

Comment: We have reviewed the Proposed Massachusetts Year 2010 Integrated List of Waters (CWA Sections 303d and 305b). While the list reflects the present status of the Massachusetts Estuary Project and the assessed condition of our coastal embayments, we find that the list does not incorporate information from recent detailed assessments of Cape Cod’s fresh water ponds. In 2001 in response to the concern about fresh water quality, a group of citizens were coalesced into the Ponds and Lakes Stewardship Program that received state, county, local and university assistance. The fruits of this labor have been documented in the 2003 Cape Cod Ponds and Lakes Atlas and numerous additional detailed assessments that were conducted for the towns of Barnstable, Dennis, Harwich, Brewster, Orleans and Eastham. I have attached a document to this letter which includes a listing of these reports. The reports are also available for down load from the website [www.capecodgroundwater.org/pondest.html](http://www.capecodgroundwater.org/pondest.html). The Division of Watershed Management should make use of this valuable information that was made available from citizens that took to heart the Commonwealths call to be citizen monitors.

Response: The bibliography accompanying this comment contains almost one hundred reports and other reference materials relative to lakes and ponds on Cape Cod, dating back to 1969. Many of these reports were reviewed and, if applicable, used by MassDEP when completing its last watershed assessment for Cape Cod published in 2002. However, in response to this comment, more recent reports (2004-2009), particularly those related to the Ponds and Lakes Stewardship Program (PALS), were downloaded from the website cited above and reviewed in light of MassDEP’s criteria for receiving and evaluating scientific data and information from outside sources, such as other state and federal agencies, universities and citizen monitoring groups (see below). This review revealed that critical data and supporting information is lacking in the PALS reports that limit their use for making assessments and listing decisions in accordance with regulations and guidelines pertaining to sections 305(b) and 303(d) of the Clean Water Act.

These deficiencies have been brought to the attention of the Cape Cod Commission in the past. MassDEP first notified the Commission of its requirements for submitting data and information for use in making assessment and listing decisions in response to a comment on Massachusetts’ *Proposed 2002 Integrated List of Waters*. At that time, the Commission, in a comment on the Integrated List, described the recently established PALS volunteer monitoring program and stated its intention “to provide DEP with the snapshot monitoring results once the Cape Cod Pond and Lake Atlas is completed.” MassDEP’s response, which remains valid today, was as follows: “The MADEP looks forward to receiving information pertaining to Cape Cod lakes that may be generated by the PALS or other projects. MADEP will update its database as information becomes available and future assessments are completed. It is important to note, however, that data submitted for use in making assessment and listing decisions must meet the following requirements: 1) an appropriate Quality Assurance Project Plan including a laboratory Quality Assurance /Quality Control (QA/QC) plan, 2) use of a state certified lab (certified for the applicable analyses), 3) data management QA/QC are described, and 4) the information be documented in a citable report that includes QA/QC analyses. This information should also be submitted along with the data report when it becomes available.” Since the original communication in 2002, MassDEP has, on several occasions, reviewed reports prepared by PALS for possible use in assessing and listing lakes and ponds on Cape Cod. Few, if any, of these reports met the criteria presented above for data originating from sources outside of MassDEP. QAPPs apparently were not prepared for most of these lake studies and insufficient information was available on sampling protocols and QA/QC procedures. Furthermore, in instances where MassDEP followed up its review with a request for more information, this was not furnished. For example, in 2005, MassDEP commented that a Draft QAPP for Indian Pond monitoring

was inadequate, yet there is no evidence to suggest that the problems were addressed, or that the QAPP was ever completed.

While the deficiencies identified above preclude the use of PALS project reports, in their present form, for making assessments and listing decisions pursuant to the Clean Water Act, it should be noted that MassDEP is currently performing a new round of assessments for Cape Cod, the results of which will inform the 2012 Integrated List of Waters. To that end, the Commission is invited to resubmit applicable PALS reports along with the necessary documentation in accordance with the criteria presented above. If QAPPs are not available, a copy of a PALS methodology document is requested that describes in detail the field and laboratory methods employed by the monitoring program. In addition, complete data sets should be submitted for each project, including QC data and analyses.

## **8) Mass Audubon – Taunton River Watershed Alliance**

*(This comment letter opened: "On behalf of Mass Audubon and the Taunton River Watershed Alliance, Inc. (TRWA), we submit the following comments on the proposed Massachusetts Year 2010 Integrated List of Waters (ILW). Our organizations are committed to protection and restoration of the natural resources of the Taunton River watershed, including watershed-wide attainment of water quality standards and uses required by the federal Clean Water Act. In March of 2009, the Taunton River was added to the National Wild and Scenic Rivers System by Congress and President Obama based on its outstanding resource values, including but not limited to fisheries and ecology and biological diversity. One of three goals adopted by the Taunton Wild and Scenic Study committee identified in the Taunton River Stewardship Plan (July 2005) was 'to understand, preserve and restore the Taunton River corridor as an intact river ecosystem and regional resource.' A primary objective of the Plan is 'to ensure water quality and stream flow to enhance the long-term viability of the outstanding resources of the Taunton River and Narragansett Bay.'")*

Comment: Mass Audubon is also involved in water resources management and policy issues statewide, and several areas of concern within the Taunton watershed are connected to broader statewide programmatic issues. Mass Audubon and TRWA recommend that the Department of Environmental Protection (DEP) work to more fully integrate various water resources related programs through the Executive Office of Energy and Environmental Affairs (EEA) Sustainable Water Management Initiative (SWMI). Water resource impairments are attributable to a variety of causes, including flow alterations due to withdrawals and impervious surfaces and stormwater runoff, which is the primary cause of nonpoint source pollution. The new methodology under development for determining Safe Yield to manage withdrawals under the Water Management Act, as well as other programs such as stormwater management standards, have potential to reduce water impairment across the state. We encourage DEP to work with other agencies through the SWMI to identify and implement new, innovative, cost-effective, and efficient means of achieving water resource protection and restoration goals across programmatic boundaries.

Response: MassDEP is implementing a multi-faceted approach for addressing problems of streamflow alterations. Water conservation measures are now included in Water Management Act (WMA) Permits that reflect the State Water Conservation Standards adopted in July, 2006. For example, the requirements that systems meet an annual value of 65 residential gallons per person per day, 10% or less unaccounted-for water loss, and require seasonal reductions in nonessential uses are some of the most stringent in this part of the country. In addition, as a participating member of the Sustainable Water Management Initiative (SWMI), MassDEP's Bureau of Resource Protection (BRP) is working with the Executive Office of Energy and Environmental Affairs (EEA) and its member agencies, along with numerous outside stakeholder groups, to address both issues affecting water quantity and associated impairments, such as those mentioned in this comment, as well as reasonably protecting the needs of public water suppliers. More information pertaining to this water management initiative can be found at: <http://www.mass.gov/?pageID=eoeesubtopic&L=4&L0=Home&L1=Air%2c+Water+%26+Climate+Change&L2=Preserving+Water+Resources&L3=Sustainable+Water+Management&sid=Eoea>.

The improved control of stormwater runoff currently is being accomplished through a number of regulatory initiatives at the state and federal level, some of which are still in development. Many point-source stormwater discharges are regulated under the NPDES Phase I and Phase II permitting programs. With the goal of improving water resources protection, the Phase II NPDES permits require the implementation of best management practices (BMP), which are designed to increase recharge and/or decrease pollutant loads. Municipalities that operate regulated municipal separate storm sewer systems (MS4s) must develop and implement a storm water management plan (SWMP).

The development of TMDLs throughout Massachusetts has pointed to the need for the expansion of existing stormwater management programs to include monitoring and control strategies for pollutants such as nutrients. In the case of the Charles River Watershed, for example, the Draft TMDL for the upper watershed suggests that a combination of regulatory mechanisms will be needed to control nutrients and other pollutants in stormwater runoff. These include the watershed-wide MS4 General Permit, watershed-specific general permits (WSGP) and the application of EPA's Residual Designation Authority (RDA) in the towns of Milford, Franklin and Bellingham. Additionally, MassDEP already has incorporated Stormwater Management Standards into the Wetlands Protection Act regulations. Finally, through its efforts in the SWMI, noted above, MassDEP seeks to identify and ultimately implement approaches to further improve and integrate water resources management.

Comment: The ILW classifies water bodies in the Commonwealth as "unimpaired for some uses" (Category 2), "Impaired" (Categories 4 or 5) or "no uses assessed" (Category 3). No water bodies in the Commonwealth meet the standards for Category 1, "unimpaired and not threatened for all designated uses." While the mainstem segments of the Taunton River are categorized as "unimpaired for some uses," the 2010 list reveals that only 15 ponds and other stream segments in the watershed are "unimpaired for some uses," 75 are "impaired" and 60 have not been assessed. Furthermore, many smaller headwater streams that are vitally important ecologically (e.g. Stump Brook which supports an Atlantic White Cedar Swamp and forms the boundary between conservation lands owned by Mass Audubon and the Department of Fish and Game), have never been assessed and are not included anywhere on the list. The low level of attainment of Clean Water Act goals is unacceptable and falls far short of the Taunton River Stewardship Plan's goal and objective referenced above. Similar high levels of impairment and lack of adequate assessment exist in other watersheds throughout the commonwealth.

We are concerned that **adequate resources are not currently committed to complete the monitoring, development of Total Maximum Daily Loading standards (TMDLs), and other programs** that are needed to improve the rate of progress, and urge that more resources be committed. We are fully aware of the Commonwealth's budgetary constraints, but as the draft report notes, water resources provide billions of dollars in direct and indirect economic benefits to the state. Therefore, we urge that DEP and EEA consider innovative methods to fund necessary monitoring and water resource improvements, including enhanced partnerships with watershed associations and other nonprofits and further incentives for municipalities, water suppliers, and industries to improve their water management practices (including stormwater retrofitting).

Response: MassDEP acknowledges that the programs highlighted above have been hit hard by the economic downturn and state budget crisis, and it is hoped that this situation will improve soon. Meanwhile, MassDEP is maximizing existing resources in an effort to be as efficient as possible, and is constantly seeking funding sources to hire more qualified staff.

Comment: In addition, it is essential that the Department of Environmental Protection (DEP) addresses **impairment caused by "pollution," especially by reduction of natural streamflow**, as well as impairment caused by "pollutants." To accomplish this, we urge DEP to investigate ways of integrating the water quality program with other programs such as Water Management Act permitting and stormwater management reviews. The EEA SWMI provides an opportunity to integrate surface water quality standards and related programs to provide adequate flows to support aquatic life and address pollutants including stormwater related pollutants and flow impairment.

Response: MassDEP recognizes the importance of water quantity as well as quality. Massachusetts is one of the few states that administers an active statewide program for addressing water quantity issues through its Water Management Act (WMA). However, the CWA distinguishes between “pollutants”, such as nutrients, metals and pathogens, which, when causing an impairment, require TMDLs, and “pollution”, such as flow and resulting habitat alterations or non-native species infestations, that do not require TMDLs. Thus, waters are not listed in Category 5 for “flow alterations.” Waters for which impairments are confirmed due to flow alteration may be listed in Category 4c (“Impaired, not requiring a TMDL”). MassDEP has begun to incorporate flow related protections into other program permits as well as to address flow issues in its Integrated Water Resources Management Planning requirements. Additional initiatives currently-underway by MassDEP to address streamflow issues are described in the response to Mass Audubon/TRWA’s first comment above.

Comment: Flow Impairment and New Fish and Flow Data – As noted above, 60 water bodies in the Taunton watershed are classified as “no uses assessed.” Especially considering that flow impairment is recognized by the Environmental Protection Agency as a factor affecting water quality and aquatic life, it is possible that many of these may in fact qualify as “impaired waters.” We urge DEP to review the new Fish and Flow Assessment data from USGS and the Massachusetts Department of Fish and Game relating to these unassessed segments.

Response: MassDEP follows a rotating watershed monitoring and assessment schedule that does not allow for new assessments to be completed for every watershed in each listing cycle. However, in preparation for assessing each watershed as it comes along in the schedule, MassDEP is required by the regulation governing CWA Section 303(d) to “assemble and evaluate all existing and readily available water quality related data and information to develop the list”. To that end, MassDEP reviews data from other state and federal agencies as well as non-governmental organizations if they meet specified criteria for collecting and submitting valid, scientific data. Applicable elements of the USGS and MDFG investigations are reviewed as part of the overall information gathering process that informs each watershed assessment.

Comment: Unassessed Waters – We are also concerned that a number of streams in the Taunton watershed are not included in the ILW. Two examples are Stump Brook in Halifax and Quaker Brook in Berkley. Under “General Approach to Assessing Massachusetts Waters” (page 19 of the IWL), DEP acknowledges that “waters represented are only those for which assessments of one or more designated uses were actually completed at one time or another in the past,” and that “many of Massachusetts’ surface waters that have never been assessed are missing from the 2010 integrated List.” The report further states, “By definition, however they are all Category 3 waters.” Recognizing that there are likely numerous water bodies in the Taunton watershed and statewide which are not included in this ILW, we reiterate the need to commit more resources to monitoring of ponds and streams.

Response: MassDEP acknowledges that the programs highlighted above have been hit hard by the economic downturn and state budget crisis, and it is hoped that this situation will improve soon. Meanwhile, MassDEP is maximizing existing resources in an effort to be as efficient as possible. Please visit <http://www.mass.gov/dep/water/resources/swmonadj.htm> for a description of some recent modifications to the surface water monitoring program that were made in response to the loss of resources available for monitoring and other water management activities.

Comment: Monitoring Schedule – As mentioned above, we understand that resource constraints are limiting DEP’s ability to monitor water bodies and develop assessments of their ability to support designated uses. Earlier this year, DEP announced a change in the monitoring cycle for watersheds in the Commonwealth, the purpose of which was to maximize efficiency and reduce costs by concentrating efforts in a given year in selected watersheds. Unfortunately, the revised schedule pushed the monitoring for the Taunton River watershed from 2011 to 2013, resulting in a seven-year interval in the monitoring cycle. Action on the 60 water bodies currently listed in Category 3, in addition to water bodies that are not currently listed will apparently be deferred to at least the year 2014. We urge DEP to review this decision to determine whether **some monitoring can be performed in the Taunton watershed earlier than the year 2013.**

Response: MassDEP will take this comment under consideration as time and resources allow. The recent modifications of the surface water monitoring program alluded to in this comment are described at <http://www.mass.gov/dep/water/resources/swmonadj.htm>.

Comment: Water Supply Management – Reduction of natural stream flow and associated water quality impairment is frequently a result of excessive water withdrawals. Where alternative supplies are or could be made available, more should be done to optimize the use of those sources to relieve stress on impacted waterways. One example of this problem is the degradation of Jones River, Herring Brook, Silver Lake and Furnace Pond in the South Coastal watershed and of Stump Brook and Monponsett Pond in the Taunton River watershed, all resulting from water withdrawals conducted by the City of Brockton as part of its water supply management. Artificial manipulation of water levels in Monponsett and Furnace Ponds degrades water quality in these bodies, and this water is piped into and commingled with a Class A water body, Silver Lake which in turn is drawn down to provide drinking water for several communities. Water quality impairment includes low dissolved oxygen levels, turbidity and noxious algae growth. Stump Brook, Herring Brook, and the Jones River experience severe low or no flow conditions during many times of year because of the lack of any provisions in the City of Brockton's water supply management plans and practices for a flow management regime that would support aquatic life. We continue to urge DEP to require Brockton to utilize the available alternative water supply from the Taunton River Desalination Plant (Aquaria) to reduce the withdrawals and restore flow levels that will allow attainment of water quality standards and designated uses in all the affected water bodies.

Response: During the public review process for the 2008 Integrated List of Waters, individual comments were made on most of the above-cited waterbodies in a letter submitted jointly by Mass Audubon, TRWA and the Jones River Watershed Association. Responses to these comments were presented in the 2008 public responsiveness document (see <http://www.mass.gov/dep/water/resources/08cmt2.pdf>). This comment addresses MassDEP's implementation of its WMA Program and is not directly applicable to the subject of this public review (i.e., the 303(d) List). Nonetheless, initiatives under-way by MassDEP to further improve and integrate water resources management are described in the responses to several of Mass Audubon/TRWA's comments.

Comment: Integrate Regulatory Programs to Provide Adequate Clean Flows – As mentioned above, we urge DEP to consider ways to integrate water quality programs with other programs to address impairment caused by reduction of natural flow. We anticipate that the new methodology for determining "safe yield," currently under development as part of EEA's Sustainable Water Resources Initiative should provide an effective measure of the adequacy of streamflow levels to support healthy aquatic ecosystems, and when incorporated into new or renewed Water Management Act permits should contribute to attainment of water quality standards and designated uses. In addition, stormwater discharge review under the Wetlands Protection Act and 401 Water Quality Certification can promote restoration of local groundwater recharge through low-impact development and other techniques, and reduce or eliminate flow-reduction impairment.

Response: MassDEP efforts are currently underway to assess how to better address streamflow issues so as to improve water resources protection, and, at the same time, ensure adequate public water supply. See the responses to previous comments of Mass Audubon/TRWA above.

## 9) Charles River Watershed Association

*(CRWA submitted the following table in support of their first comment.)*

**Charles River Waterbodies By Pollutant Impairment Listed on 303(d) List**

Impairment	Number of Charles Segments Listed	Addressed by TMDL? (Y or N)
(Alteration in stream-side or littoral vegetative covers*)	1	N
(Bottom Deposits*)	3	N
(Debris/Floatables/Trash*)	1	N

(Eurasian Water Milfoil, <i>Myriophyllum spicatum</i> *)	2	N
(Fish-Passage Barrier*)	2	N
(Low flow alterations*)	1	N
(Non-Native Aquatic Plants*)	14	N
(Other anthropogenic substrate alterations*)	2	N
(Other flow regime alterations*)	8	N
(Other*)	5	N
(Physical substrate habitat alterations*)	5	N
(Salinity*)	1	N
(Sediment Screening Value (Exceedence)*)	1	N
2,3,7,8-Tetrachlorodibenzo-p-dioxin (only)	1	N
Ambient Bioassays – Chronic Aquatic Toxicity	1	N
Aquatic Macroinvertebrate Bioassessments	3	N
Aquatic Plants (Macrophytes)	8	N
Chlordane	3	N
Chloride	1	N
Chlorophyll-a [10/17/2007-CN301.0]	2	Y
Combined Biota/Habitat Bioassessments	2	N
DDT	8	N
Dissolved oxygen saturation	5	N
Enterococcus [5/22/2007-CN156.0]	1	Y
Escherichia coli	1	N
Escherichia coli [5/22/2007-CN156.0]	13	Y
Excess Algal Growth	11	Y
Excess Algal Growth [10/17/2007-CN301.0]	1	Y
Fishes Bioassessments	4	N
Foam/Flocs/Scum/Oil Slicks	1	N
Habitat Assessment (Streams)	2	N
Mercury in Fish Tissue	4	N
Mercury in Fish Tissue [12/20/2007-NEHgTMDL]	1	Y
Nutrient/Eutrophication Biological Indicators	12	Y
Nutrient/Eutrophication Biological Indicators [10/17/2007-CN301.0]	2	Y
Oil and Grease	3	N
Organic Enrichment (Sewage) Biological Indicators	4	N
Oxygen, Dissolved	16	N
PCB in Fish Tissue	5	N
Petroleum Hydrocarbons	1	N
pH, High	1	N
Phosphorus (Total)	18	Y
Phosphorus (Total) [10/17/2007-CN301.0]	2	Y
Polychlorinated biphenyls	1	N
Polycyclic Aromatic Hydrocarbons (PAH's)	1	N
Secchi disk transparency	2	Y
Secchi disk transparency [10/17/2007-CN301.0]	2	Y
Sediment Bioassays – Acute Toxicity Freshwater	1	N
Sedimentation/Siltation	3	N
Taste and Odor	4	Y
Taste and Odor [10/17/2007-CN301.0]	1	Y
Temperature, water	6	N
Total Suspended Solids (TSS)	1	N
Turbidity	13	N
<b>Total</b>	218	
<b>Subject to draft or final TMDL</b>	72	
<b>No TMDL</b>	146	

Comment: In general, CRWA is concerned with the pace at which water body segment impairments are being addressed in the Charles River watershed. The *Proposed Year 2010 Integrated List of Waters* reflects the fact that in the Charles, only one pollutant impairment was removed from the *2008 Integrated List of Waters* Category 5 Waters list “Waters requiring a TMDL” (a.k.a. 303(d) list) over the past two years, while ten pollutant impairments were added. Additionally, the only TMDL development planned for the Charles River watershed is finalization of the *Draft Upper/Middle Charles River Nutrient TMDL*. This leaves over 140 pollutant impairments in the Charles River watershed alone which are not being addressed (See Table above). The existing TMDL development process is extremely resource intensive, making TMDL development even more challenging in the current economic environment. CRWA would



like MassDEP to address how they will comply with the Clean water Act in the Charles River watershed by ensuring that no water body segments violate state water quality standards.

Response: MassDEP does not agree with the statements above that the pollutant impairments in the Charles River watershed are not being addressed. By CRWA's accounting in the accompanying table there are 218 pollutant-segment combinations listed on the 2010 Integrated List of Waters. We estimate that 62 percent of these impaired waterbodies will be addressed through TMDLs that have been developed for the Charles River Watershed. It is important to note that a minimum of 46 (21%) of the 218 listings in the table are non-pollutants and will not be addressed through the TMDL process (cause codes appearing in parentheses with an asterisk). Another 28 listings in the table are priority pollutants that don't have an identifiable point source. Together these listings account for 93% of the pollutants CRWA lists in their table.

The 218 pollutant listings were identified in 47 waterbodies in the Charles River Watershed. Several significant TMDL initiatives have been carried out over the last several years in the Charles River Watershed. In 2007 the Final Pathogen TMDL for the Charles River Watershed was approved by EPA. This TMDL provides a framework to address bacterial and other fecal-related pollution in 20 river segments of the Charles River watershed including Beaver Brook (MA72-28); Bogastow Brook (MA72-16); Charles River (MA72-01; MA72-02; MA72-03; MA72-04; MA72-05; MA72-06; MA72-07; MA72-08); Cheese Cake Brook (MA72-29); Fuller Brook (MA72-18); Muddy River (MA72-11); Rock Meadow Brook (MA72-21); Rosemary Brook (MA72-25); Sawmill Brook (MA72-23); South Meadow Brook (MA72-24); Stop River (MA72-10); and Unnamed Tributaries (MA72-30; MA72-32). Combined, these segments represent ten percent of the listed impairments in the Charles River.

In June of 2008 the Final Total Maximum Daily Load for Nutrients in the Lower Charles River Basin was approved by EPA. This TMDL report addresses the nutrient and noxious aquatic plant impairments identified in the lower portion of the river (MA72-36 and MA72-38), which is an impounded section of the Charles River. The report also addresses associated water clarity impairments such as turbidity and taste, odor and color, for a total of 17 (approx 8%) pollutant listings. Most importantly this report set the target phosphorus load for the upper/middle portions of the watershed.

The DRAFT TMDL for the Upper/Middle Charles River was published in September of 2009 and the final TMDL is on track to be approved by EPA in 2010. Together the phosphorus TMDL's for the Lower, Middle and Upper watersheds will address nutrient related impairments in 79 miles of river and 308 square miles of the watershed and 62% of the pollutants CRWA lists in their table. Nutrient related pollutant listings in the Charles River Watershed include aquatic plants or macrophytes, excessive algae/excess algal growth, non-native aquatic plants, nutrients/eutrophication biological indicators, organic enrichment/low dissolved oxygen/dissolved oxygen saturation, Secchi disc transparency, sedimentation/siltation, taste, odor, color, total phosphorus and turbidity. This will address 68 pollutants on 9 mainstem waterbodies, 11 tributaries, and 11 connected ponds (31 segments total).

Segments with approved TMDLs are moved to Category 4a of the Integrated List unless they are impaired by other pollutants for which TMDLs are not yet approved. In that case they remain in Category 5 until all required TMDLs are completed and approved by the EPA.

Comment: CRWA appreciates that MassDEP endeavors to make the assessment and listing process transparent to the general public. To further this effort, CRWA suggests that MassDEP include some basic summary statistics and explanation of changes with the issuance of a new Integrated List of Waters. Similar to the EPA New England's Review of Massachusetts 2008 Section 303(d) List, the Proposed Year 2010 Integrated List of Waters should summarize the following changes from the Year 2008 Integrated List of Waters:

- Number of water body segments added to Categories 1-5
- Number of water body segments removed from Categories 1-5
- Number of pollutant impairments added to Categories 1-5
- Number of pollutant impairments removed from Categories 1-5

- Number of TMDLs completed
- Number of TMDLs completed in draft

Response: Although not included with the public review draft of the 2010 List, MassDEP does intend to add appendices summarizing the changes that were made to the List from 2008 to 2010. These appeared as appendices 3 and 4 of the 2008 Integrated List. Other summary statistics will be included for 2010 as time and resources allow.

Comment: Additionally, CRWA would like to reiterate our comment submitted on the Proposed Year 2008 Integrated List of Waters that MassDEP justify when a segment pollutant moves from a higher category to a lower category, especially when the pollutant moves from a category 5 (“Requiring a TMDL”) to another lower category. As there are only three possible reasons a pollutant impairment can be delisted from the 303(d) list, it would not be overly burdensome for MassDEP to note which of the three possible reasons was the justification for an individual de-listing decision within the proposed listing document.

Response: As indicated in the response to the previous comment, MassDEP intends to include an appendix to the final 2010 Integrated List that provides “good cause” to move impairments out of Category 5. The vast majority of the cases where stressors and/or segments are removed from Category 5 are either because the assessment and interpretation of more recent or more accurate data revealed that the applicable water quality standards are now being met (i.e., “new assessment”), or because a TMDL has been approved by the EPA. However, the format for the proposed appendix provides little space for documenting, in any detail, the rationale for delisting. Rather, the basis for listing and delisting individual waterbodies or assessment units (AU) is found in the individual watershed assessment summaries that can be downloaded from the MassDEP’s website at the following address: <http://mass.gov/dep/water/resources/wqassess.htm>. While the format of these watershed assessments has been abbreviated to some extent, of late, MassDEP views their preparation as the preferred way to summarize what is known about the status of the water resources in each watershed and to make the assessment and listing process as transparent as possible to the EPA and the general public. As such, the watershed assessments are also considered a fundamental element of Massachusetts’ submittal to the EPA under Section 305(b) of the CWA.

Comment: Nine segments in the Charles River watershed were listed as impaired for “metals” on the 2006 303(d) list, none of these segments are listed for impairment of metals on the final 2008 or draft 2010 list. In MassDEP’s response to CRWA’s comments on the 2008 list, they referred CRWA to the Charles River Watershed 2002-2006 Water Quality Assessment Report; however, this report does not provide any metals data for most of these segments; therefore the justification for the delisting of these segments is not clear. CRWA reiterates our request for clear explanations and justifications of changes to the 303(d) list. If the watershed water quality assessment reports are the appropriate forum for this justification then changes in a segments listing status should be explicitly stated and explained in that document.

Response: All of the metals impairments that were listed in 2006 are accounted for in 2008 and, subsequently, 2010. As explained in the introductory section of the *Massachusetts Year 2008 Integrated List of Waters* (pp. 20 – 22), the Charles was one of six watersheds for which the old “Water Body System” cause codes were mapped over to the new Assessment Database (ADB) causes. One of the many enhancements offered by the ADB is the availability of over 400 different “causes” that can be specified as contributing to the non-attainment of designated uses. This allows for more detail to be presented in the Integrated List with respect to the nature of the impairments. For example, the non-specific “nutrients” cause used by the WBS is further resolved in the ADB through the use of such causes as “Phosphorus (Total)”, “Nitrogen (Total)”, or even “Nutrient/Eutrophication Biological Indicators”. Likewise, specific metals available to ADB users, such as copper or nickel, now replace the general term “metals” used by the WBS. So, while it is true that “metals” no longer appears as a cause code in the Integrated List, in most instances they have been mapped over to more specific ADB codes. For example, five of the original nine segments now exhibit the cause code “Mercury in Fish Tissue” to account for the earlier “metals” impairments. Furthermore, during the most recent Charles Watershed assessment, Segment MA72-02, impaired by “metals” in 2006, became a part of a new segment (MA72-

33) that no longer included Cedar Swamp Pond, the only portion of the original segment that was impaired by “Mercury in Fish Tissue”. Therefore, the new river segment is not listed as impaired by mercury, but this impairment continues to be applied to Cedar Swamp Pond. Finally, three segments (MA72-11, MA72-31 and MA72-36) were designated as impaired by metals in the past, but specific data and information are unavailable to determine the specific causative metals. Since the term, “metals”, is not available as a cause code in the ADB, the generic impairment “Other” was applied to these segments to represent the unspecified metals. Before initiating the development of TMDLs, monitoring will be required to confirm that they are indeed impaired and to identify the causative metals.

Comment: MA72-33 (Charles River) – Mercury in Fish Tissue was listed as a pollutant impairment for this segment on the *2008 Integrated List of Waters* but is not included on the *Proposed 2010 Integrated List of Waters*. Why was this delisted?

Response: Segment MA72-33 was **not** actually listed for mercury in fish tissue on the 2008 List, so this is not a delisting. As explained in the response to the previous comment, Cedar Swamp Pond is no longer included as part of the river segment and is now listed in Category 5 with mercury in fish tissue as a cause.

Comment: MA72-33 (Charles River) – Low flows are frequently observed at CRWA's volunteer monthly water quality monitoring site 35CS, the Central Street Bridge in Milford. From February to September, 2009, CRWA's volunteer monitors had difficulty or could not collect water quality samples at this site due to extremely low river depths and flows. Depth requirements for sample collection are explicitly stated in CRWA's approved Quality Assurance Project Plan. (*Two photographs submitted – not reproduced here*).

Response: There are no enforceable flow standards in effect for Massachusetts' rivers. While the MassDEP did encounter low-flow conditions in the most upstream reach (MA 72-01) of the Charles River during its 2002 monitoring program, evidence was not strong enough to confirm that the next segment downstream (MA 72-33) was impaired by flow alterations. Today, the extent to which low-flow conditions contribute to the impairment of designated uses in this segment remains uncertain. In a report entitled *Evaluation of Strategies for Balancing Water Use and Streamflow Reductions in the Upper Charles River Basin, Eastern Massachusetts* (Eggleston, 2004), the USGS concluded that “although human water use contributes to the problem of low summertime streamflows, human water use is not the only, or even the primary, cause of low flows in the basin”. Due to the lack of enforceable minimum flow standards, the unconfirmed extent to which low flows are actually contributing to use-impairment, and the uncertainty that exists with respect to natural versus anthropogenic contributions to low-flow conditions, the stressor “flow alterations” will not be added to this segment at this time. The MassDEP does recommend, however, that continued research efforts be aimed at developing water and wastewater management alternatives for the Upper Charles Basin that will meet future demands for public water supply while minimizing deleterious impacts to surface waters.

Comment: MA72-18 (Fuller Brook) – CRWA's deployed depth logger located on Fuller Brook at Dover Road regularly documents extremely flashy conditions along this tributary. Fuller Brook consistently has higher peak flows and lower base flows than other similar tributaries where CRWA monitors flows. CRWA recommends this segment be assessed for flow alterations.

Response: MassDEP acknowledges the flashy conditions in Fuller brook as evidenced by the CRWA flow data but, for reasons cited in the response to the previous comment, did not feel compelled to list this segment as impaired by “low flow alterations”. The MassDEP agrees that flow conditions in Fuller Brook should continue to be monitored.

Comment: MA72004, MA72016, MA72-04, MA72-05 – These segments are all listed as impaired for “Mercury in Fish Tissue” with no reference to the Northeast Regional Mercury TMDL. Are these segments excluded from this TMDL?

Response: Beaver Pond (MA72004), Cedar Swamp Pond (MA72016) and the two main stem Charles River segments, MA72-04 and MA72-05, are currently NOT included in the Northeast Regional Mercury

TMDL. However, the two ponds will likely qualify for coverage following EPA approval of the 2010 List. The TMDL, which can be found at <http://www.mass.gov/dep/water/resources/mertmdl.doc>, was developed by the six New England states, New York and the New England Interstate Water Pollution Control Commission (NEIWPCC) and approved by the EPA in 2007. Appendix A of the TMDL report presents a list of the waterbodies that each state designated as covered by the regional TMDL. As such, Massachusetts chose to include only those lakes, ponds and reservoirs that were presumed to be impaired solely as the result of atmospheric deposition, and excluded waters where other potential sources could exist. As a result, lakes and ponds potentially impaired by local sources of mercury, and *all river segments* impaired by mercury, whether or not they receive wastewater effluent discharges, were omitted from the regional mercury TMDL. Charles River segments, MA72-04 and MA72-05, therefore, were not included in the TMDL.

The two ponds, contrarily, are now likely candidates for coverage under the regional mercury TMDL. Cedar Swamp Pond, while already under a DPH mercury advisory at the time the regional TMDL was developed, was assessed and reported on by MassDEP as an impoundment of a river segment (MA72-02) and, as such, was overlooked when the list of ponds to include in the TMDL was formulated. In the case of Beaver Pond, the DPH health advisory pertaining to mercury was issued after the regional TMDL was approved by the EPA. Nonetheless, the following quote from the regional TMDL document explains how applicable waters could be included in the TMDL following its completion: "In addition to the impaired waters listed in Appendix A, the TMDL may, in appropriate circumstances, also apply to waterbodies that are listed for mercury impairment in subsequent Clean Water Act Section 303(d) Lists of Impaired Waters. For such waterbodies, this TMDL may apply if, after listing the waters for mercury impairment and taking into account all relevant comments submitted on the Impaired Waters List, a state determines with EPA approval of the list that this TMDL should apply to future mercury impaired waterbodies." Therefore, MassDEP intends to propose that Beaver and Cedar Swamp ponds be covered by the regional TMDL in the public review draft of the 2012 Integrated List. Barring any objections to this proposal, the ponds would be covered by the regional TMDL upon EPA approval of the final 2012 Integrated List.

Comment: MA72-11 (Muddy River) – The Muddy River was added for pollutant impairment "Other", what does this refer to?

Response: The Muddy River was originally listed as impaired by "metals", but this impairment code is not available in the Assessment Database (ADB). According to the MassDEP's 2002-2006 Charles River Watershed 2002-2006 Water Quality Assessment Report (WQAR) the cause code "Other" is utilized here to refer to "... other contamination including elevated concentrations of trace metals and organic compounds in sediments." Before initiating the development of a TMDL, monitoring will be required to confirm that this segment is indeed impaired, and to identify which contaminants are in violation of water quality standards.

Comment: MA72-11 (Muddy River) – The Muddy River is not listed for Total Suspended Solids impairment despite documentation of high TSS concentrations in the Charles River Watershed 2002-2006 Water Quality Assessment Reports.

Response: Total Suspended Solids (TSS) data from both the CRWA and USGS are reported in the 2002 - 2006 Charles Watershed WQAR. However, a criterion for TSS has not been published in the surface water quality standards and the magnitude and frequency of high TSS values in the Muddy River are a matter of judgment. For example, the following quote from the WQAR characterizes the CRWA data available at the time of the assessment: "Between February 2000 and December 2003, total suspended solids concentrations ranged from <2 to 51 mg/L (n=37) and only two samples were >25 mg/L." Additional data from the USGS were summarized as follows: "Total suspended solids concentrations during dry weather dry sampling conditions were all  $\leq$  11 mg/L (n=14 including one split collected between June 1999 and July 2000). Similarly, turbidity measurements were also low ( $\leq$  23 NTU n=10 measurements). Event mean concentrations of total suspended solids and turbidity for the storm events sampled were reported to range from 24 to 65 mg/L (n=10 measurements including one split) and 16.0 to 39.0 NTU (n=7), respectively (storm events sampled between January 2000 and September 2000)." While MassDEP did not find this to be compelling evidence for listing TSS as a cause of impairment in the

Muddy River, it is noteworthy that a number of related impairments were applied to this water body in the WQAR and ensuing Integrated List. These include “turbidity”, “physical substrate habitat alterations” and “bottom deposits”. It follows that the implementation of a TMDL for turbidity will control TSS loadings along with these other impairments.

Comment: MA72-38 (Charles River) – This segment of the Charles River is not listed as impaired for *Escherichia coli* based primarily on data collected in the early part of this decade. CRWA regularly samples at three sites in this region, the Massachusetts Ave. (Harvard) Bridge (Site 763S), the Longfellow Bridge (Site 773S) and the New Charles River Dam (Site 784S) and recent data from these sites documents multiple water quality violations for both the primary and secondary contact standards. It is unfortunate that despite the development of a pathogen TMDL for the Charles River watershed it appears that this segment may need to be reassessed and added for *E. coli* impairment.

Response: Since a watershed-wide TMDL for pathogen impairments in the Charles Watershed was approved by the EPA in 2007, any subsequent listings for *E. coli* bacteria would automatically be placed in Category 4a on the Integrated List. However, following the review of the CRWA data submitted with this comment, MassDEP does not agree that primary and secondary contact recreational uses should be listed as impaired for this segment. Whereas MassDEP relies on bacterial data from a minimum of five sampling events during a single recreational season, one violation of the standard for Primary Contact Recreation (Site 763S in 2008) is only based on four samples, and one violation of the standard for Secondary Contact Recreation (Site 763S in 2010) is only based on three samples. All other geometric means would meet both Primary and Secondary Contact Recreation criteria.

Comment: MA72-05 and MA72-06 (Charles River) – Similar to segment MA72-38 the assessment of this segment is based primarily on data collected prior to 2007. CRWA’s monthly sampling in these sections of the river document multiple violations of the primary and secondary contact bacteria standards. Namely, in 2008 [sic] at CRWA Site 447S the Dover Gage, the geometric mean of samples collected during the primary contact season was 159.9 cfu/100mL, with a maximum sample result of 7270 cfu/100mL collected on May 19, 2009. Complete data for CRWA’s monthly volunteer monitoring program is available at: [http://www.crwa.org/water\\_quality/monthly/monthly.html](http://www.crwa.org/water_quality/monthly/monthly.html) or by contacting CRWA.

Response: MassDEP reviewed 2007-2009 CRWA data from their website, along with quality assurance data submitted on request, and found them to be acceptable for use in making assessments. It was determined that up to six of the CRWA’s sampling stations relate to Segment MA72-05 and three relate to MA72-06. The geometric means of all of the stations relating to MA72-05 in all three years indicate that both Primary and Secondary Contact Recreation criteria are met. In the case of Segment MA72-06, geometric means meet standards for two of the three sampling sites in all three years and the third site in 2007 and 2008. A single high value (7270 cfu/100 ml) from 2009 skews the geometric mean for that site (447S) to a value that exceeds the Primary Contact Recreation Standard. From this analysis, MassDEP has concluded that the magnitude and frequency of exceedances of the recreational standards in Segment MA72-06 are not sufficiently high to list those uses as impaired. During the next Charles Watershed assessment this segment may be assigned an “Alert Status”, indicating that, while the use is currently supported, there is some limited evidence to suggest that impairment may exist. This designation would not, however, affect the current listing status of the segment.

Comment: During the public comment period on the Proposed 2008 Integrated List of Waters CRWA recommended that Godfrey Brook and Canterbury Brook be assessed for *E. coli* impairment based on CRWA sampling conducted as part of the Upper/Middle Charles River TMDL development and the Find It and Fix It (FIFI) stormwater assessment program (See data summary below). If there is insufficient data to complete an assessment on these waterbodies they should be added to “Category 3 – No Uses Assessed” and assessed as part of the Charles River watersheds next monitoring cycle, which is scheduled to take place this year.

### Bacteria Sampling Results for Godfrey and Canterbury Brooks

Site Name	Number Samples	Geometric Mean FC/EC (cfu/100 mL)	Max FC/EC (cfu/100 mL)
Godfrey Brook (FC)	3	1,339	8,000
Canterbury Brook (EC)	4	4,313	22,000

Response: As suggested above, the CRWA submitted these same data from Godfrey and Canterbury brooks when commenting on the Proposed 2008 Integrated List of Waters. At that time, the MassDEP determined that there were insufficient data and information for completing an assessment of these tributaries. Once again MassDEP has reviewed these data as well as additional quality assurance (QA) data requested of the CRWA and submitted under separate cover. Review of the relative percent differences (RPDs) for the Canterbury Brook data indicated very poor results (62%, 18% and 56%) for some high values. There were no QA data available to review for the Godfrey Brook data. Irrespective of the status of the QA data, there are insufficient data from any of the sites during any year for assessment purposes. For example, there are only three samples, total, for one site on Godfrey Brook; two during the secondary contact season (Nov.) of 2004 and one during the primary contact season (Aug.) of 2005. For Canterbury Brook there are a total of five sites. One of these was sampled only twice (Nov. 2006 and May 2007). The other four sites were each sampled four times; twice during the primary contact season of 2006, once in Nov. 2006 and once in May 2007. Nonetheless, the *E. coli* values are consistently high and warrant further exploration for sources to mitigate.

### 10) Ipswich River Watershed Association

*("The Ipswich River Watershed Association appreciates the opportunity to comment on the draft 2010 Integrated List of Waters. While most of our comments pertain to the Ipswich River Basin, we also have done some monitoring of Bull Brook, Dow Brook and the Egypt River in the Parker River Basin, and therefore include comments on these resources as well. For your reference, IRWA's monitoring reports are available on-line at <http://ipswich-river.org/resources/monitoring-data/>."*)

Comment: Ipswich Basin: Lubbers Brook: since the Town of Wilmington increased water withdrawals from this sub-basin, it has experienced flow impairment. Lubbers Brook also experiences very low dissolved oxygen in summer (not meeting WQS).

Response: MassDEP completed its most recent assessment of the Ipswich River Watershed in 2004 (see <http://www.mass.gov/dep/water/resources/wqassess.htm>). While assessing Lubbers Brook, MassDEP noted the presence of the Wilmington Water Department well, but the lack of streamflow data precluded an analysis of the potential effects of this withdrawal on the brook. The CWA distinguishes between "pollutants" such as nutrients, metals, pesticides, solids and pathogens that all require TMDLs and "pollution" such as low flow, habitat alterations or non-native species infestations that do not require TMDLs. These waters could be listed in Category 4c (i.e., impaired, but not requiring a TMDL) if, in the future, the aquatic life use is determined to be impaired.

MassDEP's examination of instream biota at Lubbers Brook, while only qualitative in scope, suggested the presence of a macroinvertebrate community that is typical of low-gradient, wetland-dominated streams. Furthermore, while MassDEP has confirmed the occurrence of low dissolved oxygen conditions in this brook, it seems likely, from the biological assessment, that these conditions can be attributed to natural wetland drainage and groundwater recharge, which are naturally low in dissolved oxygen.

EPA guidance is clear with regard to the listing of segments where a criterion has been exceeded, but the exceedance is the result of background or natural conditions: *"If the state's water quality standards include a specific exclusion for exceedance caused by 'natural conditions', these segments would not be considered impaired (i.e., they could be excluded from Categories 4 and 5)"* (Guidance for 2006 Assessment, Listing and Reporting Requirements Pursuant to Sections 303(d), 305(b) and 314 of the Clean Water Act", July 29, 2005, US EPA, Office of Water, p. 62). The Massachusetts Surface Water

Quality Standards do contain such a provision. 314 CMR 4.03(5) states “Natural Background Conditions. Excursions from criteria due to solely natural conditions shall not be interpreted as violations of standards and shall not affect the water use classifications adopted by the Department.”

Comment: Ipswich Basin: Idlewild Brook is highly stressed due to water withdrawals, resulting in dry or near-dry conditions, often for months at a time. Mile Brook in Topsfield has experienced periods of low-flow and no-flow adjacent to the Topsfield wells.

Response: MassDEP completed its most recent assessment of the Ipswich River Watershed in 2004 (see <http://www.mass.gov/dep/water/resources/92wqar.pdf>). While assessing Idlewild and Mile brooks, MassDEP noted the presence of the water withdrawals of the Hamilton and Wenham water departments and Topsfield Water Department, respectively, but the lack of streamflow, water quality or biomonitoring data from these brooks precluded any analysis of the potential effects of the withdrawals. MassDEP assigns “Alert Status” to segments that are supporting their uses or that are currently not assessed, to identify segments that may exhibit potentially emergent water quality or habitat problems that warrant additional investigation. While there was insufficient information to make an assessment and listing decision for Idlewild and Mile brooks, “Alert Status” designations were assigned to the aquatic life use based on the potential for habitat and water quality problems that could result from low flow conditions in watersheds of this size (i.e., ~2 sq. mi.).

As explained above, the CWA distinguishes between “pollutants” such as nutrients, metals, pesticides, solids and pathogens that all require TMDLs and “pollution” such as low flow, habitat alterations or non-native species infestations that do not require TMDLs. These waters could be listed in Category 4c if, in the future, the aquatic life use is determined to be impaired. The IRWA’s observations may be useful to MassDEP when carrying out future assessments. However, to be used for reporting under sections 305(b) and 303(d), MassDEP requires more documentation of existing conditions than provided in this general comment. Please be advised that MassDEP requires the following when submitting data from external sources: 1) an appropriate Quality Assurance Project Plan including a laboratory Quality Assurance /Quality Control (QA/QC) plan, 2) use of a state certified lab (certified for the applicable analyses), 3) data management QA/QC are described, and 4) the information be documented in a citable report that includes QA/QC analyses.

CWA assessment and listing issues notwithstanding, the Executive Office of Energy and Environmental Affairs (EOEEA) and its agencies are taking steps toward addressing the problem of low streamflow described in several of the IRWA’s comments. For example, a recently established Sustainable Water Management Advisory Committee is working with the Water Management Act Advisory Committee and the Water Resources Commission to develop a water allocation program that satisfies the needs of public water suppliers while considering ecological issues such as the effects of low streamflow on fish and other aquatic life. More information pertaining to this water management initiative can be found at <http://www.mass.gov/?pageID=eoeesubtopic&L=4&L0=Home&L1=Air%2c+Water+%26+Climate+Change&L2=Preserving+Water+Resources&L3=Sustainable+Water+Management&sid=Eoeea>.

Comment: Parker Basin: Bull Brook and Dow Brook (downstream of reservoirs) and the Egypt River experience severe flow impairment, generally from late spring through the autumn each year, due to water withdrawals upstream.

Response: All of these waterbodies are currently unassessed and, therefore, appear in Category 3 of the Integrated List. Insufficient water quality data and related information were available from any of these waterbodies to assess them as part of the most recent MassDEP Parker River watershed assessment (<http://www.mass.gov/dep/water/resources/91wqar10.pdf>). Please see the response to the previous comment for information pertaining to the assessment and listing of low-flow impacts, as well as measures currently underway for addressing low-flow impairments.

Comment: Ipswich Basin: This section indicates a completed TMDL for metals for Hood Pond and Mill Pond; we are unaware of either of these TMDLs and do not see them listed on pages 20-21.

Response: Hood Pond (Ipswich) and Mill Pond (Burlington) are impaired by “Mercury in Fish Tissue” and are included in the Northeast Regional Mercury TMDL, which can be found at <http://www.mass.gov/dep/water/resources/mertmdl.doc>. This TMDL was developed by the six New England states, New York and the New England Interstate Water Pollution Control Commission (NEIWPCC) and approved by the EPA in 2007. (See EPA TMDL No. 33880 on page 21 of the *Proposed Integrated List* document.)

Comment: Ipswich Basin: Exotic invasive species were found in Martins Pond (North Reading) and Hood Pond (Topsfield) last summer.

Response: Martins Pond is currently on the 303(d) List (i.e., Category 5). Among the impairments listed for this pond is “Non-native aquatic plants”, referring to the presence of *Cabomba caroliniana*. In the case of Hood Pond, MassDEP acknowledges the presence of the non-native wetland plant *Lythrum salicaria*; however, this species is not truly aquatic and its growth in the vicinity of the pond is not viewed as impairing its use.

Comment: Ipswich Basin: Martins Brook, the Miles River, Norris Brook, Unnamed Tributary (9253945) and Wills Brook are impaired due to flow alteration.

Response: All five of these streams are currently on the 2010 303(d) List for various combinations of pollutants. More information pertaining to MassDEP’s most recent assessment of these waterbodies can be found at <http://www.mass.gov/dep/water/resources/92wqar.pdf>. MassDEP acknowledges the presence of WMA-permitted water withdrawals in all of these subwatersheds, but the lack of streamflow data precluded an analysis of the effects they may be having on the individual streams. Please see the responses to earlier comments for information pertaining to the assessment and listing of low-flow impairments, as well as measures currently underway for correcting them.

Comment: Maple Meadow Brook, Martins Brook, the Miles River and Greenwood Creek typically do not meet WQS for dissolved oxygen in the summer months.

Response: Both Martins Brook (MA92-08) and the Miles River (MA92-03) currently appear on the 303(d) List with dissolved oxygen depletion (i.e., “Oxygen, Dissolved”) included as a cause of impairment. MassDEP completed its most recent assessment of the Ipswich River Watershed in 2004 (see <http://www.mass.gov/dep/water/resources/92wqar.pdf>). Discussion pertaining to Maple Meadow Brook (p. 31) and the unnamed tributary locally known as Greenwood Creek (p. 101) acknowledges that low dissolved oxygen concentrations have been reported for both of these segments in the past. Nevertheless, insufficient data representative of the entire segment precluded an assessment of the aquatic life use for Greenwood Creek. While MassDEP has confirmed the occurrence of low dissolved oxygen conditions in Maple Meadow Brook, it is uncertain whether these conditions can be attributed to pollutant discharges, or whether natural wetland drainage and groundwater recharge contribute, naturally, to low dissolved oxygen values. As discussed in the response to the first comment, excursions from criteria due to natural conditions are not considered to be violations of standards and, therefore, further investigation will be necessary to determine the cause of the depleted oxygen condition.

Comment: Silver Lake has experienced beach closures in the past, although the situation is improved since various control measures were implemented in the past few years.

Response: MassDEP completed its most recent assessment of the Ipswich River Watershed in 2004 (see <http://www.mass.gov/dep/water/resources/92wqar.pdf>). The assessment of Silver Lake in Wilmington (p. 114), acknowledges that the public beach was closed to swimming for a 6-day period in 2002. MassDEP’s assessment methodology for the primary contact recreational use specifies, for “public bathing beach” areas: Formal beach postings/advisories should be neither frequent nor prolonged during the swimming season (the number of days posted or closed cannot exceed 10% during the locally operated swimming season). Because the beach at Silver Lake was open for the vast majority of the 2002 bathing season the lake was assessed as supporting the recreational uses.



Comment: Parker Basin: The Rowley River is impaired due to flow alteration.

Response: The Rowley River (MA91-05) is formed by the confluence of the Egypt River and Muddy Run and is a tidal estuary (0.27 sq. mi.) whose ecosystem is structured primarily in response to the saline input from Plum Island Sound. As such, it seems difficult to conclude that the Rowley River, itself, is impaired by streamflow alteration. Nonetheless, concerns regarding the potential low-flow impairments in Bull and Dow brooks and the Egypt River, which flow into the Rowley River, were expressed and addressed in previous comments and responses.

Comment: The Ipswich River Basin studies (by USGS and others) conclude that low-flow is closely associated with loss of critical habitats and of fish species. An additional concern is that extreme low-flows in summer are typically associated with higher pollutant concentrations, low dissolved oxygen and (potentially) with warmer temperatures. Thus, in our opinion, flow alteration should trigger a TMDL requirement to evaluate the impacts of low-flow on pollutant and DO concentrations and temperature.

Response: A TMDL determines the allowable input of a pollutant to a waterbody, and allocates that load among point and nonpoint sources of that pollutant. A TMDL does not evaluate impacts of low-flow, nor does flow get allocated through the TMDL (i.e., 303d) process. Nevertheless, MassDEP acknowledges the complex relationships between streamflow and water quality and the difficulties associated with separating out anthropogenic effects from natural conditions. This is, in part, why EOEEA and its member agencies are involved with several measures aimed at assessing and managing the problem of low streamflow in Massachusetts. Please see the responses to earlier comments for more information pertaining to these efforts.

## **11) Region 1, U. S. Environmental Protection Agency**

*(The EPA wrote: "EPA New England appreciates the opportunity to provide comments on the Massachusetts Year 2010 Integrated List of Waters, dated April 2010. These comments are relative to additions, removals, and changes to the impaired water list (also referred to as the Section 303(d) list and/or category 5 of the integrated report.) EPA requests that MassDEP address these comments, along with any other public comments received, prior to final submission of the Section 303(d) list to EPA for review and approval.*

*MassDEP presents a detailed summary of the existing data for waterbody segments in the most recent water quality assessment report written for each particular watershed. These comments rely on the draft integrated report as well as the watershed water quality assessment reports referenced in the draft integrated report".)*

Comment: Attached you will find the Preliminary Data Report for the I-93 Tri-Town Project prepared by EPA New England's drinking water program staff. This report details road-salt impacts to local water resources along the I-93 corridor from Exits 41 to 44 in Wilmington, Tewksbury and Andover, MA. Water-quality monitoring by EPA New England during the winter of 2009-2010 detected chronic and/or acute exceedances of chloride above aquatic life standards in five of the six perennial streams in the Tri-Town area. These data were obtained prior to project construction. In addition, sodium concentrations in municipal water supplies in Andover and Wilmington were significantly above the 20 mg/l advisory level for populations vulnerable to hypertension or requiring low-sodium diets. EPA requests that MassDEP list the waterbody segments impaired for chloride on the final 2010 integrated report based upon the data provided in EPA's preliminary data report.

Response: MassDEP has reviewed the "Preliminary Data Report, Baseline Assessment of Stream Water Quality in the I-93 Tri-town Project Area from December 1, 2009 to April 7, 2010," (Data Report), and supporting documents as part of this analysis. A Project Work/QA Plan was developed for this project and data, including quality assurance data, were provided as part of the Preliminary Data Report. Thus, the material conforms to the MassDEP criteria for acceptable data to use in making water quality assessments for the water bodies listed in the report.

One of the key premises in the report is establishing a relationship, via a regression line and formula for that line, to substitute specific conductance measurements for actual chloride sampling so as to utilize deployed, unattended probes to collect continuous data over long periods of time. This type of relationship has been utilized in other similar studies as noted in the Data Report. Based on Figure 2 [not reproduced here], this relationship seems to hold true for chloride values in the range of the chronic criterion (i.e., 230 mg/l). However, the values for both chloride and specific conductance utilized for the acute criterion (i.e., 860 mg/l) were not within the range of values graphed in Figure 2 and so they should be questioned. Checking field and lab results from Appendix B [not reproduced here] against the regression formula indicate that the formula may substantially overestimate the chloride values based on corresponding specific conductance readings. Based on this finding, the recommendation is to utilize only those chloride values estimated by specific conductance that indicate exceedance of the chronic criterion and not those for the acute criterion. A station-by-station analysis of the data and the final listing decisions are presented below.

#### Station 1: Brown's Crossing Wellfield in Wilmington, MA

The case is made that "... chloride levels will soon exceed the federal secondary threshold ..." and that "... sodium ... concentrations ... range from ... 5.5 to 7 times the recommended federal and state advisory level ... for populations vulnerable to hypertension." While these numbers are of concern, MassDEP does not typically assess groundwater sources or the drinking water use when making assessments for Clean Water Act sections 305(b) and 303(d). It is recommended that data be forwarded to MassDEP's Drinking Water and/or Groundwater programs.

#### Station 2: Martins Brook at Andover Street in Wilmington, MA (Ipswich River Watershed)

The station location EPA identifies is actually on an unnamed, intermittent tributary to Martins Brook. Specific conductance extrapolations indicate five discrete periods when the chronic criterion was exceeded for four days or more. No acute exceedances were noted. MassDEP has concluded that, based on these data, the unnamed tributary to Martins Brook, but not Martins Brook itself, is impaired and will be added to Category 5 of the Final Integrated List.

#### Stations 3 and 8: Sutton Brook at I-93 in Wilmington, MA (Shawsheen River Watershed)

The stations identified by EPA are on an unnamed (presumed locally known as "Sutton Brook"), interrupted, intermittent tributary to the Shawsheen River. Specific conductance extrapolations indicate that at Station 3 the acute criterion was exceeded during three discrete intervals. There were no exceedances of the acute criterion at Station 8 and the chronic criterion was not exceeded at either station. Based on the uncertainty with regard to estimating chloride values from specific conductance measurements in the range of acute chloride toxicity, this segment would be listed as "not assessed", but with an "Alert Status". This segment will be placed in Category 3 of the Integrated List and will be re-evaluated as part of the TMDL development for other segments impaired by "chlorides".

#### Station 4: Shawsheen River at I-93 North in Andover, MA

Neither the acute nor chronic criterion for chloride was exceeded at this station. Although extrapolated chloride concentrations did exceed 230 mg/l they did so for a period of less than three days and so no violation occurred.

#### Station 5: Unnamed Tributary to the Shawheen River at Vale Street in Tewksbury, MA and Station 9: Storm Water Discharge 1,300 Feet North of Dascomb Road in Andover, MA

Station 5, as identified by EPA, is situated on an intermittent stream. Specific conductance extrapolations indicate six discrete periods when the chronic criterion was exceeded. The acute criterion was exceeded during five intervals. From this analysis, MassDEP has concluded that the unnamed tributary to the Shawsheen River is impaired and will be added to Category 5 of the Final Integrated List.

Station 6: Pinnacle Brook at Frontage Road in Andover, MA (Shawsheen Watershed)

The station identified by EPA is on an intermittent portion of a previously-defined segment (MA 83-15, unnamed tributary, locally known as Pinnacle Brook), which is in Category 4a as having a TMDL completed for pathogens. Specific conductance extrapolation indicates one period of 6.8 days when the chronic criterion was exceeded. The acute criterion was exceeded during three intervals. The description of this segment will be expanded to include the headwaters of the unnamed tributary, and the segment will be added to Category 5 of the Final Integrated List as impaired by “chloride”.

Station 7: Fish Brook at the Abandoned Railroad Grade in Andover, MA (Merrimack Watershed)

This station is on a permanent portion of Fish Brook. One chronic exceedance was observed during the EPA study. The segment will be added to Category 5 of the Final Integrated List based on this information.

Comment: The 303(d) list includes waterbody segments listed for “cause unknown.” Cause unknown is being removed from five segments in the Nashua River watershed on the 303(d) list (category 5 of the integrated report.) It is not clear why impairment of these segments was partially attributed to an unknown cause. Consequently it is difficult to determine how the data in the watershed reports supports removal of these impairments. The segments are Nashua River (segments MA81-08 and MA81-09) and North Nashua River (segments MA81-01, MA81-03, and MA81-04). Please clarify why the segments were originally listed for cause unknown, if “cause unknown” is now presented as a specific cause, or how the watershed report supports delisting for this cause.

Response: A description of the assessment databases used, both past and present, by MassDEP, along with an explanation of how the old Water Body System (WBS) cause codes have been “mapped over” to the new Assessment Database (ADB) cause codes, is provided in the introductory information accompanying the *Proposed Massachusetts Year 2010 Integrated List of Waters* (see pp. 16-19). For listing cycles through and including 2008, the use of the impairment “Cause Unknown” usually, but not exclusively, implied situations where biomonitoring activities detected deleterious effects on the macroinvertebrate or fish community, thereby indicating impairment of the aquatic-life use of the waterbody. With the use of the ADB, however, more descriptive cause codes are now available such as “Aquatic Macroinvertebrate Bioassessments” or Fishes Bioassessments”.

In 2002 the stressor “Cause Unknown” was first applied to the five segments cited above based on the assessment of the benthic macroinvertebrate community as “slightly impaired” using the EPA Rapid Bioassessment Protocols (RBP). However, not only have the cause codes changed from one Nashua Watershed assessment cycle to the next, but the actual assessment methodology has also changed. Up to, and including, the 2002 listing cycle, one of *three* possible outcomes resulted from a use assessment – “Support”, “Partial Support”, “Non-Support” – and the macroinvertebrate (RBP) endpoints were interpreted as follows when assessing the Aquatic Life Use:

Status of Macroinvertebrate Community	Aquatic Life Use Support
Non-Impaired	Support
Slightly Impaired	Partial Support
Moderately Impaired	Non-Support
Severely Impaired	Non-Support

According to EPA guidance, both “Non-Support” and “Partial Support” of a designated use were considered impairments that qualified segments for placement on the 303(d) List, assuming that the impairments were caused by a pollutant. While the causes of macroinvertebrate community impairment may result from pollutants or non-pollutants, (e.g., habitat alterations), EPA required that segments with biological impairments be 303(d)-listed until the cause(s) of impairment were confirmed.

EPA discontinued its support of the WBS after the 2002 listing cycle. Instead, the newly developed "Assessment Database" (ADB) was introduced as the preferred database application for tracking water quality assessment data. One of the many enhancements offered by the ADB is the availability of over 400 different "causes" that can be specified as contributing to the non-attainment of designated uses. Furthermore, the EPA published new assessment guidelines in the form of a *Consolidated Assessment and Listing Methodology* or "CALM" Document. With the implementation of the ADB and new assessment guidance, one of only *two* outcomes could now result from an assessment – "Support", "Impaired" – with "Partial Support" no longer an option. To accommodate this change, MassDEP redefined how the macroinvertebrate (RBP) endpoints were to be applied to the Aquatic Life Use assessment process. From the 2004 listing cycle to the present, the Aquatic Life Use has been considered as supported where "Non-Impaired" and "Slightly Impaired" biological communities are present, and the Aquatic Life Use is not supported (i.e., impaired) where biological communities are "Moderately" or "Severely" impaired.

From this discussion it can be seen that, according to the more recent assessment methodology, the results of the macroinvertebrate community assessments performed back before the 2002 listing cycle should not have led to the assignment of the stressor "Cause Unknown" to these five segments. Nonetheless, at that time, only Segment MA81-08 would have been found to be in support of the Aquatic Life Use, due to the presence of additional impairments in the other four segments. Fortunately, the delisting of "Cause Unknown" from four of the five segments in question here did not depend, solely, on an argument that the original listings were faulty, although this is entirely consistent with EPA guidance. Instead, examination of the *Nashua River Watershed 2003 Water Quality Assessment Report*, accessed at <http://www.mass.gov/dep/water/resources/wqassess.htm>, will reveal that each of these segments was assessed using recent and comprehensive data and information, including ambient toxicity test results, water quality data and, excepting MA81-09, biomonitoring results, and that each was determined to be supporting the Aquatic Life Use. While no new benthic macroinvertebrate community data were available from MA81-09, "Cause Unknown" should not have been mapped over to "Aquatic Macroinvertebrate Bioassessments" for this segment because the original listing was flawed. This change will be reflected in the Final Integrated List.

Comment: North Nashua River (MA81-02\_2008) and (MA81-03\_2008) were listed as impaired for taste, odor and color on the 2008 list. In the case of MA81-03\_2008 it was also listed for turbidity. Please clarify if the impairments are being removed based upon one or more multiple field observations in 2003. It is unclear from the watershed report if there was additional data relied upon to decide that the aesthetic uses of the segments are now being met.

Response: Segments MA81-02 and MA81-03 were first listed with the impairments mentioned above in 2002 based on field observations made during MassDEP's 1998 survey of the Nashua River Watershed. At that time, sewage odors and turbid conditions were noted by a habitat assessment crew. In 2003, field observations were made at one site in each segment on at least six different occasions (approximately monthly) by water sampling crews. Quoting from the *Nashua River Watershed 2003 Water Quality Assessment Report*, "There were no field observations indicating prolonged or frequent occurrences of objectionable deposits, odors, turbidity or color, floating scum, or overabundant growths of aquatic plants or algae." In short, several more field observations were available for delisting these impairments than for their original listing.

Comment: Segments within Mount Hope Bay (Shore) watershed were on the 2008 303(d) list for organic enrichment/low DO. Cole River (segment MA61-04\_2008), Lee River (segment MA61-01\_2008), and Mount Hope Bay (segment MA61-07) have the pollutant removed on the 2010 list without explanation. Please clarify if the pollutant was removed in error, or if they are being delisted, provide more specific information supporting the delisting.

Response: "Organic enrichment/low DO" is a WBS cause code that is not available for use in the ADB. Rather, "Oxygen, Dissolved" is the ADB cause code used to describe impairment due to dissolved oxygen depletion. MassDEP intended to assign "Oxygen, Dissolved" to segments MA61-04 and MA61-07 but a clerical error led to its omission from the latter segment. "Oxygen, Dissolved" will appear as an

impairment of MA61-07 on the final version of the list. The Lee River (MA61-01) was first listed back in 1992, and its listing status remained unchanged through subsequent listing cycles because no new information was available for assessing this segment. When attempting to select the appropriate ADB cause codes, MassDEP consulted the original WBS files and assessment documentation. From these, it is apparent that, aside from some limited bacteria data, the assessment was not based on actual monitoring results. Rather, anecdotal reports of algae blooms and presumed effects on water quality generally associated with impounded streams, such as elevated temperature and low dissolved oxygen, were all that informed the decision to list this segment. Therefore, "Nutrient Eutrophication Biological Indicators" was chosen as a more representative impairment code for MA61-01, given the uncertainty surrounding the original assessment. Nevertheless, this segment remains on the 303(d) List, and further investigation will be required to confirm the validity of its listing status before initiating the development of a TMDL.

Comment: Waquoit Bay (segment MA96-21) is being delisted for pathogens. The Cape Cod watershed report explains briefly that the bay is being assessed as supporting based on shellfish data. Please provide more specific information as to the timing and frequency of data collection and the range of concentrations supporting this delisting.

Response: When assessing the "Shellfishing" use, MassDEP relies primarily on the shellfish area classifications of the Department of Fish and Game's Division of Marine Fisheries (DMF). DMF's Shellfish Management Program is described in some detail in Appendix E of the most recent water quality assessment report for Cape Cod (see <http://www.mass.gov/dep/water/resources/96wqar.pdf>). The water quality monitoring performed by the DMF in support of their program is described in considerable detail on their website (<http://www.mass.gov/dfwele/dmf/programsandprojects/shellsani.htm#shellfish>), from which the following is taken:

"Each growing area must have a complete sanitary survey every twelve years, a triennial evaluation every three years and an annual review in order to maintain a classification, which allows shellfish harvesting. Minimum requirements for sanitary surveys, triennial evaluations, annual reviews and annual water quality monitoring are established by the ISSC [Interstate Shellfish Sanitation Conference] and set forth in the NSSP [National Shellfish Sanitation Program]. Each year water samples are collected at 2,320 stations in 294 growing areas in Massachusetts's coastal waters at a minimum frequency of five times while open to harvesting."

Since the bacteria criteria codified in the Massachusetts Surface Water Quality Standards for designated shellfishing waters are equivalent to those established for "Approved" shellfish areas by the NSSP, and because DMF's monitoring program, in terms of timing and frequency, is suitable for making assessments, MassDEP is confident that waters approved for shellfishing by the DMF are meeting water quality standards for bacteria and supporting the "Shellfishing" use. For this reason, it is not necessary for MassDEP to review directly the DMF bacteria in order to assess the shellfishing use. Waquoit Bay Segment MA96-21 is entirely contained within DMF shellfish area SC15.0, all of which is classified as "Approved" for shellfishing (<http://www.mass.gov/dfwele/dmf/programsandprojects/shellfish/sc/sc15.pdf>). Therefore, the use is supported and the original impairment (i.e., "pathogens") has been removed.

Comment: A number of waterbody segments in Category 5 on the 2008 list have been removed from the 2010 list. Please provide justification for its delistings, clarify if the waterbodies are now included within other segments, or correct the omissions. The segments are:

- Bemis Pond (MA36011\_2008) and Power [sic] Mill Pond (MA36126\_2008) in the Chicopee watershed;
- Texas Pond (MA42058\_2008) and Thayer Pond (MA42059\_2008) in the French watershed; and
- Chaffins Brook (MA81-33\_2008), Pepperell Pond (MA81167\_2008), and Scarletts Brook (MA81-25\_2008) in the Nashua watershed.

Response: Bemis Pond and Powder Mill Pond are now included in segments MA36-40 (Abbey Brook) and MA36-03 (Ware River), respectively. It was intended that impairments previously associated with

these ponds be listed with the stream segments; however, "Total Suspended Solids" was inadvertently omitted from Segment MA36-40. Therefore, Abbey Brook will be included in Category 5 of the Final List as impaired by "Total Suspended Solids".

Both Texas Pond and Thayers Pond are now included in Segment MA42-03 (French River), and all impairments previously associated with these ponds have been transferred to the river segment.

Pepperell Pond and related impairment codes – except "Turbidity", which was removed based on the new assessment – are now included with the Nashua River Segment MA81-06. During the most recent assessment of the Nashua River Watershed (<http://www.mass.gov/dep/water/resources/wqassess.htm>) Scarlett's and Chaffins brooks were both found to be supporting the primary and secondary contact recreational uses and these segments now appear in Category 2. Chaffins Brook previously appeared on the 303(d) List as impaired by "Cause Unknown". The explanation of why it was removed is provided in the response to EPA's first comment pertaining to the removal of this cause from other segments in the Nashua River Watershed.